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Riter-Conley Manufacturing Company

STEEL CONSTRUCTION

Pittsburgh

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SMITHSONIAN DEPOSIT.

THE UNITED GAS IMPROVEMENT COMPANY,

PHILADELPHIA.

BUILDERS OF

THE STANDARD DOUBLE SUPERHEATER

LOWE WATER GAS APPARATUS.

ACCURATE MEASUREMENT

OF

AIR AND STEAM SUPPLY

(PATENTED),

AFFORDING { **PERFECT CONTROL OF GENERATOR FIRE CONDITIONS.**

PRODUCING { **UNIFORM RESULTS. HIGHEST EFFICIENCIES.**

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Presidential Address (Mr. Warren S. Blauvelt), Twenty-Second Meeting, Michigan Gas Association.

The objects of the Michigan Gas Association are: First, the promotion of knowledge in all matters relating to the gas industry;" second, "The establishment and maintenance of a spirit of fraternity between members, by social intercourse and by free exchange of information and ideas;" and, third: "The establishment of more cordial and friendly relations between the manufacturers of gas and their patrons, based upon mutuality of interest."

In the promotion of knowledge this Association has a record of which it may well be proud. The research work done at Michigan University, under the auspices of this Association, has contributed not a little to the sum total of human knowledge in its particular field. The various papers presented at the 21 annual meetings have been of great educational value.

All who have had the privilege of attending regularly our annual meetings, will agree that they have been completely successful in promoting this spirit of fraternity among our members. Our recollections of past meetings are always pleasant, and we look forward to future meetings with high hopes which are never disappointed. We return to our various fields of labor with renewed ability to cope with our varied problems, and inspired with a high sense of our responsibilities, not only to the owners of the properties by whom we are employed, but also to the communities which we serve.

As the years go by, it is noticeable that the ethical standards for the conduct of our business are constantly being advanced; we feel more keenly our duty toward our customers, and we strive more earnestly to improve the quality and reduce the cost of our service. The Michigan Gas Association has, I believe, been a considerable factor in this advance. Unquestionably, we have succeeded to some extent in promoting friendly relations between manufacturers of gas and their patrons; but there still remains much to be done before we can realize anywhere near the ideal relations which should exist between purveyors and actual or prospective consumers of gas. It is, I believe, in this direction, the promotion of cordial relations, between our companies and the communities which they serve, that the greatest possibilities exist for increasing the value of this organization, not only to the individual members and to the corporations represented, but also in a very real sense to the communities which we serve.

The basis of trade is mutual advantage, and the only possibility for cordial relations between the two parties engaging in trade is that each shall feel he is having his desires gratified with less expenditure of effort, of goods which represent effort, or of money which measures the value of goods and of labor, than he could secure in any other way. In the gas business there are four groups of traders, each of which should be convinced that it is securing the maximum satisfaction possible in exchange for whatever it gives to the other group or groups with which it has dealings.

These groups are: First, the general public who wish to have available for use at all times, gas of uniform and high quality, delivered at approximately a uniform pressure at the lowest possible price. Second, the investors who wish to secure the largest possible returns consistent with safety, from the use of their money in the construction of the plant. Third, the great mass of employees who wish to secure the highest possible wages, to work under the best possible conditions and to be given opportunities for advancement whenever possible. Fourth, the business organizers, managers and engineers, whose functions are to see opportunities for the establishment of gas works, secure the necessary capital for their construction, direct the designing and constructing of the plant, outline general business policies, organize and direct the employees. In general, the ideal confronting the members of this group is to so organize and conduct the business as to keep customers satisfied with the quality of the service they receive at the price charged; to make the investors feel satisfied with the returns received from, and with the security of, their investment; and to keep the employees so well satisfied with their wages, the conditions under which they work, and the opportunities for advancement, that they are willing at all times to put forth their best efforts to do their work in harmony with the policies of the company. The rewards which this group desires are: First, an income in salary or share in profits, or in a combination of the two, sufficient to attract to the gas industry men of the exceptional type necessary to perform even with moderate success the functions outlined; second, and with the greatest men in this group, of far higher importance than financial returns, the opportunity to develop their personalities in the performance of great and exceptional services to each of the other groups directly, and indirectly to the world at large.

At first glance the interests of these various groups appear to conflict. Can they be harmonized; and, if so, how? These are the

questions which confront the mem ers of the fourth group mentioned —the business organizers, managers, engineers, etc. As the membership of our Association is largely made up from this group, we have a particular interest in considering these questions. Our success in our chosen field depends largely on the extent to which we are able to harmonize these apparently conflicting interests.

Lack of harmony is generally traceable to ignorance. Where honest people disagree as to facts, the cause of the difference of opinion is invariably the lack of definite knowledge. Where ignorance prevails, differences of opinion naturally follow; when knowledge supplants ignorance in any realm, harmony of opinion results. Men no longer dispute about the general form of the earth; physicians agree that yellow fever is transmitted by the mosquito. Are there facts, now known or discoverable, the general knowledge of which would produce that desired harmony between the seller and the consumer of gas, which is one of the avowed subjects of this Association?

With regard to certain relations between the various interested groups there can be no difference of opinion among well informed people. Capitalists will not voluntarily advance the money necessary to build, extend, or improve a gas works, unless convinced that they will secure greater satisfaction, measured by returns from, and safety of, such an investment, than they can secure from the use of their money in any other undertaking of which they have knowledge. This fact, then, gives us a rule by which we may determine the rate of interest or dividends which must be paid the investor to secure his co-operation in the enterprise; the rate must be sufficient to attract capital whenever the necessity for the same arises. From another point of view, the rate should be so attractive that any investor could, under ordinary conditions, sell his interest in the business for what it cost him. If the returns to the investors are less than the amount necessary to secure these results, additional capital for necessary improvements and extensions will not be obtainable and the service will suffer, thus producing dissatisfaction among customers.

Rates of wages, and working conditions generally, should be such as to make the mass of employees feel that they are doing better, all things considered, than they could elsewhere. If there is any difficulty in securing employees having proper qualifications, or in retaining in the service employees who have demonstrated their fitness for the work, there is something wrong with their treatment which should be corrected promptly, or the efficiency of the organization will deteriorate. Unsatisfactory service, the inevitable consequence of an inefficient organization, will develop dissatisfied customers; and, instead of the desired cordial relations between buyer and seller, antagonism and distrust that may continue for years are engendered. But labor inefficiency will not only injure the quality of the service; it will also multiply the cost thereof. Owner and customer, therefore, have a mutual interest in seeing that employees are so treated as to secure their most efficient service.

The quality of service, and the cost thereof in the final analysis, are directly traceable to the efficiency of our fourth group—the managers, the directors, the engineers of the enterprise. To supply the public demand for efficient service the capitalists seeking opportunities for investments and the men willing to work must have effective leadership. To secure such leadership, the rewards for success in the gas industry must be commensurate with the rewards in other lines of activity; but the rewards should be dependent upon the success of the enterprise, and this success should be determined, not only by the regularity with which interest is paid on the bonds, but also by the satisfaction expressed by patrons.

If these statements of the relations of the various groups of people interested in the conduct of the gas business are correct, the fundamental mutuality of interests is evident. Any lack of harmonious relations between a gas company and its patrons, then, must be due to bad management, to a lack of knowledge of facts, or to the introduction into the problem of certain factors which interfere with the normal reactions which would take place between the four groups directly interested.

Among such disturbing factors may be mentioned the following: Inequitable rates, long term franchises, and unjust taxes. Inequitable rates have been discussed so frequently, and the subject is so well understood by those interested, as to make unnecessary any extended remarks at this time. Equitable rates are possible only when each consumer pays as nearly as may be determined the full cost of the service he receives and no more—full cost, of course, includes proper returns for the capital invested and an adequate reward for good management. To secure equitable rates the customer's bill must include three items: A "consumer's" charge, to be the same for all customers, sufficient to cover the cost of carrying the account, a "readiness-to-serve" charge, based on the maximum rate of consumption, the cost of the investment (*i. e.*, interest, depreciation and maintenance) required to meet this maximum demand and the load factor of the individual consumer in its relation to both the daily and yearly load factors of the combined consumers, and a charge for the actual quantity of gas consumed. With such a system of equitable rates, discrimination between patrons would be eliminated and the sales of gas would be greatly stimulated; increased sales would decrease the cost and make possible a reduction not only in the price of gas, but also probably, a reduction in the readiness-to-serve charge.

Franchises covering a term of years have in the past been necessary in order to secure a market for the sale of bonds. If the security of both principal and interest were assured by some governmental action, other than a long term franchise, the necessity for the franchise would disappear. The main objection to a long term franchise is that, although it may be absolutely fair to both parties when agreed upon, it is impossible to cover future contingencies; hence it is likely to work injustice to one or both parties in a few years, and interfere with the normal evolution of the business. Thus the very instrument which was relied upon to insure good service may become a potent factor in retarding or preventing improvements in the service. To secure efficiency there must be freedom to make changes in methods, standards and rates to meet changing conditions.

Unjust taxes are serious handicaps to good service at a low cost. When one considers seriously the question of taxation, the injustice and absurdity of collecting any taxes from property employed to serve the public at once become apparent. The presence of gas mains in the street enhances the value of the real estate on that street; to tax the gas mains is practically to take from the gas company a part of the value which it has produced and give it to the owners of the land benefited. The gas company in turn must add the amount of taxes to the price of gas, and the ultimate consumer thus pays in his gas bill taxes for which he receives no benefit. The increased cost of gas, due to unjust taxes, limits its economic field of use. Abolish such taxes and gas consumption will increase and the cost of manufacture and distribution will decrease, thus making possible a still further reduction in price, and consumers will be doubly pleased.

If these statements of the ultimate effects of inequitable rates, long-term franchises and unjust taxes are correct, it follows that, even with the most efficient management and a general knowledge of the facts regarding the gas industry, the desired cordial relations between gas manufacturers and their patrons cannot be fully realized until these disturbing factors are eliminated.

While it may be true that corporations have no souls, it is certainly true that they have characters. The character of a corporation, like the character of an individual, is the resultant of innate tendencies acted upon by environment. In the formation of the character of individuals, unquestionably environment is the stronger of these two factors. As with corporations so with individuals. If by law or custom, efficiency of service, at a low cost to the consumer, be made unprofitable, and inefficient service at a high price be highly rewarded, no matter how good the intentions of the corporation managers, the corporation will develop, through no fault of its own, such a character as will make it distinctly unpopular.

Up to the present time the efforts of this Association have been expended mainly in the attempt to advance the gas industry by the improvement of methods of manufacture, distribution, consumption and sale; or, in other words, by adaptation to existing environment.

Has not the time arrived when we should devote serious efforts to improve the environment of the industry, by eliminating therefrom all factors which tend to prevent the realization of the fundamental mutuality of interests between gas manufacturers and their patrons? Would it not be a wise step for this Association to appoint a committee to thoroughly investigate this question and report at the next meeting? Action by this organization, based on definite knowledge, with the result of such careful investigation as suggested, might prove of great value to the gas industry and to the public for whose service the industry exists.

MR. J. L. THOMAS, who, in January, 1912, resigned as Sales' Manager to the New York and Queens Gas Company, to become the representative of the Pittsburgh Water Heater Company on Long Island and Staten Island, N. Y., has resumed the former connection. We are glad to welcome him to his former field, that he tilled so well.

Increasing Cost of Gas Making Materials.

[Prepared by MR. B. O. TIPPY, for the Twenty-second Meeting, Michigan Gas Association.]

The general advance in the cost of living, about which we hear so much, coupled with the general advance in in the price of all material and labor entering into the operatiou as well as the construction of a gas plant, makes the consideration of this subject a timely one. Gas coal, being the principal gas making material, will be considered first.

Gas Coal.—Statistics have been received from several of the larger companies in the State—one of them extending back 18 years. The price of coal during this period has advanced from $2.50 per ton to $3.20 per ton, being an increase of 28 per cent. During the past 15 years the Youghiogheny gas coal acreage has increased in value from about $200 per acre to $900 to $1,000 per acre, each acre yielding about 6,000 tons of coal. Thus the price of coal in the hill, which was formerly figured at about 5 cents per ton, with improvements, is now about 20 cents per ton, including improvements. The following is a quotation from a letter received from a prominent coal company:

"As I look back I find the mining rate in 1896, was 54 cents per ton, and in 1913 it is $1 per ton. Wage for common day labor, in 1886, was $1.50 per day; in 1913, $2.42 per day. In 1896 the mines worked 10 hours per day, and in 1913 8 hours per day, which in itself has a very important bearing on costs. I think that the above figures will show you that the cost of producing coal has almost doubled in the past 15 years. In 1898 our statistics show that 'Three-quarter' coal was sold at 90 cents per ton at the mines, and in 1913 at $1.40 per ton at the mines. This advance in price does not cover the increased cost of the coal in the hill, and the increased cost in mining it. In addition to this you are well aware that everything that has gone into the mines in the way of supplies is very much higher that it was a few years ago. I mention these facts merely to show that it looks as if the present market were not an abnormal market, but rather that prices will be inclined to still further advance. In fact, I would say that they would be obliged to advance materially during the next 10 years."

I am advised that next spring the agreement between the operators and miners in both the hard and soft coal fields will terminate for the first time simultaneously, and that strong efforts will be made to advance the mining rate, and at the same time will put the miners on a "Mine run" basis instead of on a "Three-quarter" screened basis as at present. If this agreement materializes, it alone will mean an advance in the price of coal of about 30 cents per ton.

Gas Oil.—Statistics from the same source as above, going back 18 years, show that the price of gas oil during thie period has advanced from $0215 to $0320 per gallon, or an increase of 50 per cent. This does not include the recent advance in price of oil of nearly 100 per cent. The cause of this recent advance in price will be made clear, I think, from a study of the following tables which show the stocks of crude oil on hand. They are taken from the August number of the "National Petroleum News":

Eastern Fields.—Gross stock figures cover all stocks of all kinds of oil held by the Eastern lines. The stocks of oil of Pennsylvania and Lima-Indiana grades are also given separately, even though they are included in the gross stocks.

While these figures show that stocks in the mid-Continent fields alone have about held their own, the total crude oil on hand above ground—all fields considered—has steadily decreased in the last 2 years by about one-third of the total original amount and that the price has steadily advanced approximately 100 per cent. Results of my interviews with oil men of high standing—both Standard and so called independents—prove to me that this is a very deep subject and that my knowledge of the exact oil situation to day is incomplete at best, even the oil men themselves having widely different opinions and theories as to what may happen. Indications, however, seem to point to the conclusion that, unless a new and large oil field is discovered, the price of oil must continue to advance. By this I mean that, while the advance may not be violent or immediate, and may be in a series of up-and-downs, the ultimate net result of these movements or fluctuations will be higher prices.

The oil business has very materially changed in the last few years. At one time gasoline was a drug on the market and was allowed to run away in the sewers, and it was at that time the gasoline stove was brought out to produce a market for this waste product. The advent of the automobile has tremendously stimulated the business, until gasoline is now being used to such an extent for automobiles, gasoline launches and other kindred purposes, that, in order to supply the demand, it has been necessary to include in gasoline other fractions distilling at higher temperatures, therefore, the gasoline of to day is quite a different product than formerly. Under these changed conditions, there is now an over-production of kerosene, and the oil companies have developed the blue flame oil stove, and also oil engines for farm use, in an endeavor to realize a fair price for this product. Much of the kerosene produced, however, is run in with the gas oil, and there is being developed an engine which will

Eastern Fields.

1911.	Runs.	Gross Stocks.	Stocks of Pa. Grade.	Price of Pa. Grade.	Stocks of Lima, Ind.	Price of Lima, Ind.
Jan.....	2,362,732	15,523,308	4,486,088	$1.30	4,317,175	$0.82
Feb.....	2,244,812	15,959,531	3,535,902	1.30	4,383,561	0.82
Mar	2,500,542	15,959,531	.....	1.30	.....	0.82
Apr	2,334,829	15,759,035	.....	1.30	.....	0.82
May	2,561,885	15,548,097	.....	1.30	.....	0.82
June....	2,420,768	16,346,640	4,541,906	1.30	3,724,478	0.82
July...	2,143,366	15,928,715	4,198,692	1.30	3,724,478	0.82
Aug	2,270,443	15,780,145	4,071,571	1.30	3,340,093	0.92
Sept	2,133,340	15,300,054	3,758,182	1.30	3,207,020	0.84
Oct.....	2,188,334	14,239,369	3,523,285	1.30	3,201,967	0.84
Nov	2.023,108	14,152,613	3,471,669	1.30	3,302,854	0.84
Dec.....	2,176,369	12,399,553	3,493,874	1.35	2,896,457	0.84
1912.						
Jan.....	1,809,624	13,455,840	3,591,920	1.50	2,967,238	0.92
Feb.....	1,936,973	13,083,228	3,791,735	1.50	2,990,298	0.95
Mar	2,399,796	12,491,170	3,965,689	1.50	3,010,540	0.98
Apr	2,475,429	11,658,625	4,052,141	1.55	3,022,377	1.00
May	2,638,288	11,620,775	4,233,146	1.55	2,494,149	1.02
June....	2,517,194	11,320,615	4,168,146	1.60	2,515,578	1.02
July....	2,575,483	10,908,167	4,114,242	1.60	2,151,647	1.04
Aug	2,582,757	11,315,925	3,861,026	1.60	2,307,331	1.04
Sept	2,253,815	11,248,198	3,720,398	1.60	2,444,979	1.04
Oct	2,380,025	10,616,324	3,386,484	1.65	2,135,500	1.07
Nov	2,125,020	10,340,681	3,408,784	1.85	2,134,642	1.13
Dec.....	2,280,323	10,422,467	3,499,751	2.60	2,297,860	1.25
1913.						
Jan.....	2,244,978	10,191,283	3,555,852	2.50	2,338,451	1.37
Feb....	2,021,132	10,145,879	3,673,992	2.50	2,238,048	1.37
Mar	2,059,994	10,002,976	3,717,662	2.50	2,132,305	1.37
Apr	2,379,743	10,054,231	3,735,756	2.50	2,229,721	1.39
May	2,300,678	9,688,390	3,781,304	2.50	2,045,212	1.39
June.. .	2,235,906	9,791,996	3,682,118	2.50	1,955,272	1.30

	Illinois.			*Mid-Continent.*		
1911.	Runs.	Stocks.	Price.	Runs.	Stocks.	Price at the Wells.
Jan...	2,169,878.48	26,243,014.79	$0.60	4,136,352	50,272,506	$0.44
Feb...	1,994,231.42	25,635,245.01	0 60	3,927,572	50,070,938	0.44
Mar ..	2,589,634.97	23,997,495.65	0.60	4,631,308	50.539,839	0.44
Apr ..	2,173,939.43	24,005,009.96	0.63	5,010,351	52,659,839	0.46
May	2,299,881.16	24,129,387.96	0.63	4,868,093	51,246,470	0.46
June..	2,208,358.29	28,195,749.12	0.65	4,658,117	52,804,724	0.48
July..	2,292,926.66	22,714,182.54	0.65	4.617,378	52,272,420	0.48
Aug ..	2,340,877.21	22,265,927.92	0.65	4,613,899	51,087,764	0.48
Sept.	2,179,591.49	21,904,718.65	0.67	4,433,096	49,892,178	0.50
Oct...	2,195,407.56	21,359,482.42	0.67	4,521,700	50,726,829	0.50
Nov ..	1,996,321.16	20,211,934.37	0.67	4,261,070	50,272,560	0.50
Dec...	2,088,368.54	19,131,677.63	0.69	4,087,224	50,260,203	0.50
19 2.						
Jan...	1,870,413.30	18,393,303.04	0.75	3,857,448	49,876,465	0.57
Feb...	1,872,169.87	17,706,834.72	0.78	3,719,798	49,607,961	0.60
Mar ..	1,970,421.14	17,278,537.27	0.81	3,826,496	49,371,119	0.60
Apr ..	1,935,015.12	17,001,287.72	0.83	3,671,572	49,022,689	0.64
May ..	2,104,689.43	16,636,328.76	0.85	4,171,483	49,022,614	0.68
June..	2,099,719.88	16,235,352.83	0.85	4,162,648	48,752,055	0.68
July ..	2,241,787.12	15,689,993.67	0.87	4,468,873	48,865,091	0.70
Aug ..	2,013,419.46	14,682,822.79	0.87	4,703,036	48,751,731	0.70
Sept.	1,885,225.99	13,949,064.15	0.87	4,482,978	48,301,432	0.70
Oct ...	1,915,926.31	13,039,507.24	0.90	4,896,647	48,093,614	0.70
Nov ..	1,700,704.92	12,307,724.81	0.96	4,790,734	47,794,788	0.76
Dec...	1,633,536.83	11,598,519.08	1.08	5,039,393	47,695,447	0.83
1913.						
Jan...	1,614,667.45	11,134,331.94	1.14	5,046,196	47,678,070	0.88
Feb...	1,366,718.50	10,366,955.03	1.25	4,802,513	47,889,151	0.88
Mar ..	1,478,900.43	9,966,083.21	1.25	5,398,883	48,391,425	0.88
Apl...	1,479,791.92	9,486,416.02	1.30	5,374,263	49,412,506	0.88
May .	1,573,150.55	8,990,143.47	1.30	5,417,057	49,928,680	0.88
June..	1,493,690.77	8,111,628.56	1.30	5,168,817	50,371,176	0.88

use gas oil or fuel oil in an endeavor to secure a better price for these low priced oils.

Not long ago the Standard Oil Company let it be known that it had devised a process for either increasing the quantity of gasoline to be extracted from crude petroleum, or had a method by which it would manufacture a so-called "Motor Spirit"' and that on this account would manufacture less gas and fuel oils—even refraining from making contracts—with the result that gas and fuel oils became more expensive. The latest information, which I have is that the so-called "Motor Spirit" is not a success for the purpose for which it was intended, and it is a fact that the Standard Oil Company has again changed its policy and is making contracts for fuel oil and gas oil.

I am told that the manufactnre of "Motor Spirit" is a dangerous process, and has been undertaken only at the Standard Oil Company Plant at Whiting, Ind., and I am informed that gas oil and fuel oil are sold at a loss as compared with the cost of crude oil, from which they are obtained, and that there were only 2 months, during the recent high prices of these products, in which they were not sold at a loss. It is said that the Standard Oil Company is perfecting a process whereby fuel and gas oils will be worked up in a manner similar to that in which coal tar is now handled in Germany—that is, into delicate dyes and other high priced products, and it is said it hopes to make this the most profitable part of the oil business. Fuel oil and gas oil cannot be sold at much lower prices than are now being received, and if crude oil continues to advance in price, all fuel and gas oils must advance with it.

Coke.—Genuine gas coke, of course, is an important item in making water gas, but prices and conditions of preparing and marketing vary considerably in a comparison of one city with another; and, therefore, there is not much that would be of interest in submitting coke statistics in this connection. The price, however, of foundry coke, delivered in Detroit in 1903, was $5.50, and in 1913, $5.60, with fluctuation within that time of prices as shown in the following table:

Year.	Price.
1903	$5.50
1904	4.55
1905	4.50
1906	5 25
1907	5.65
1908	5.00
1909	5.75
1910	5.50
1911	5.00
1912	4.50
1913	5.60

Anthracite Coal.—While not used in this State in the manufacture of water gas it is largely used in some sections of the country. Practically all the anthracite coal is owned by transportation companies. In the Eighties, these companies, because they needed money, sold at auction in New York city large quantities of anthracite coal. In many cases the net returns did not exceed $1.25 to $1.50 per gross ton at the mines. Since this period there has been a gradual advance in price, due to increased cost of production and other causes, until we now find a sliding scale of $3.25 to $4 per gross ton at the mines. A few years back the labor condition was not a serious question. The majority of the men employed in the mines were English, Welsh or Irish. To-day 37 or more languages and dialects are spoken by the men around the mines. Different races solicit different duties which they prefer to perform. For instance, the Italian is rarely found below the ground. Each nationality has its own holiday, and inasmuch as no portion of an anthracite operation can continue working unless all other departments are underway, the observance of the holiday of one class forces idleness upon all others, thus curtailing production.

In July of this year a tax of 2½ per cent. ad valorem levied by the State of Pennsylvania became effective on anthracite coal at the mine breaker. This tax will run from 3 cents to 11 cents per ton, and the dealers have added 10 cents per ton on each ton of coal sold.

The Bayer Process for Purifying and Enriching Gas.

M. Bayer, the Engineer-Chemist of the municipal gas works, Brünn, Moravia, has been granted French patents for these processes:

Commenting upon the advantages of vesicular vapor for bringing about an intimate mixture of a liquid with a gas, he points out that by this molecular division, the absorption of the impurities in the gas by an appropriate vapor is effected to the greatest extent. Atomizing the liquid in an ascending spray is the best means of obtaining a finely divided rain, and result of close study of upward vesicular atomization led to the conclusion that its industrial application ought to render very great service in the purification and enrichment of gas. He reviews briefly the various appliances in use in gas works for the removal of naphthaline and tar, the absorption of ammonia, etc., and for the enrichment of gas by benzol and other hydrocarbo ns.

For the removal of naphthaline he found the light tar oils especially efficacious; particularly those containing about 60 per cent. of the fraction distilling between 100° and 180° C., and 35 to 40 per cent. of a fraction from 180° to 230°. Such an oil will dissolve naphthaline up to 20 or 30 per cent. and is easily atomized at ordinary temperatures, and recondensed, and has some value as an enricher. The oil has simply to be intimately mixed with the gas by atomizing, and then taken out by a P. and A. apparatus or other similar appliance, the gas afterward undergoing ordinary chemical purification.

To carry out the operation he has devised the "Excelsior" apparatus for producing the vesicular oil vapor, and mixing it with the gas. Fig. 1 is a sectional view.

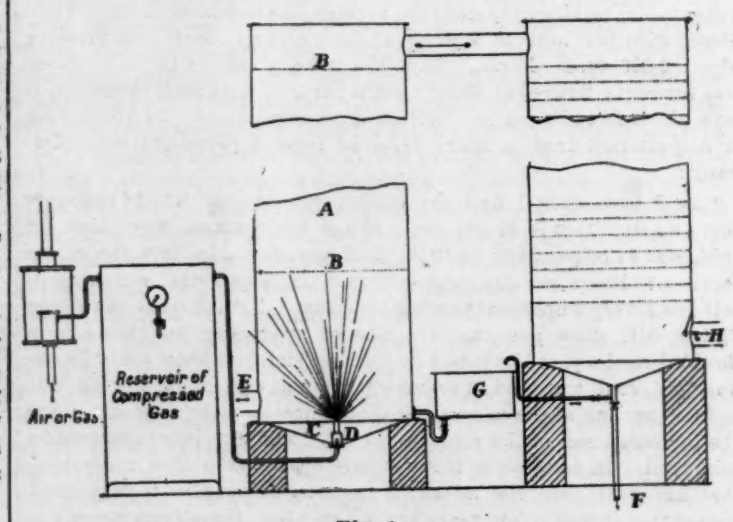

Fig. 1.

An iron cylinder, A, has its upper part divided by perforated plates, *B*, and its base is a cone or inclined plane, *C*. In the bottom are one or more sprays, *D*, to which the oil flows to be atomized. The vaporized oil issues from the nozzles in a cone of vapor which mixes with the gas entering at *E*. At its top the cylinder connects with a second cylinder inside of which are sheet iron partitions through which the gas passes. The oil condensed flows to the bottom of the cylinder to be again used, or if saturated is run to the tar tank by the pipe *F*. On the left are the compressor and reservoir for compressed gas. *G*, is the oil tank, and, *H*, the pipe which takes the gas to the P. and A. extractor.

Where gas has to be enriched in order to comply with franchise requirements, it may happen that large volumes of gas have to be brought up quickly and it is necessary to have facilities for doing this efficiently. Upward spraying of the enriching hydrocarbons enables this to be easily done, as shown in Fig. 2.

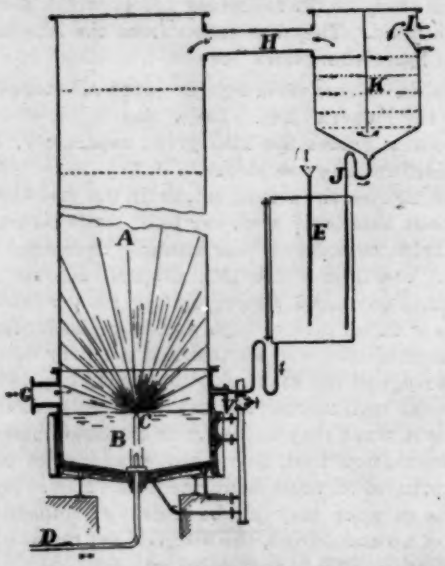

Fig. 2.—The "Excelsior" Carburetor.

This is similar to the appliance previously described. It consists of a vertical cylinder, *A*, with a conical jacketed base, *B*, which can be heated by steam by means of the valve *V*. In the center of the

cylinder, level with the liquid, is an atomizer, *C*, actuated by compressed gas supplied by the pipe *D*. In the cylinder are partitions of perforated sheet iron. Connected with it is a shorter cylinder acting as a collector for the traces of the carbureting material which are carried forward. The tank *E* contains the enriching liquid, which flows to the atomizer, to be converted into vesicular vapor. The purified gas enters the carburetor at *G*, rises in contact with the vaporized hydrocarbon, through *H*, into the collector *K*, which is divided by a partition, and escapes by the pipe *I* after having deposited the excess of the carbureting material in the conical base of the collector, whence it is conveyed back to the tank, *E*, by the syphon pipe *J*. The apparatus is very simple and strong; obviates loss of benzol by re-condensing, allows of the carbureting of large volumes of gas, and does not require a high temperature for the volatilzation of the benzol. Speaking of purification of gas from ammonia, M. Bayer refers to the appliances now in use, and points out what he regards as their drawbacks. Admitting ordinary water to the last compartment of the washers causes precipitation of the calcareous salts, and rapidly clogs the plates, brushes, etc. Moreover, the gas may carry a certain quantity of naphthaline, and this eventually fouls the first compartment. The "Excelsior" washer, shown in Figs. 3 and 4, eliminates these troubles, the calcareous salts, tar and naphtha-

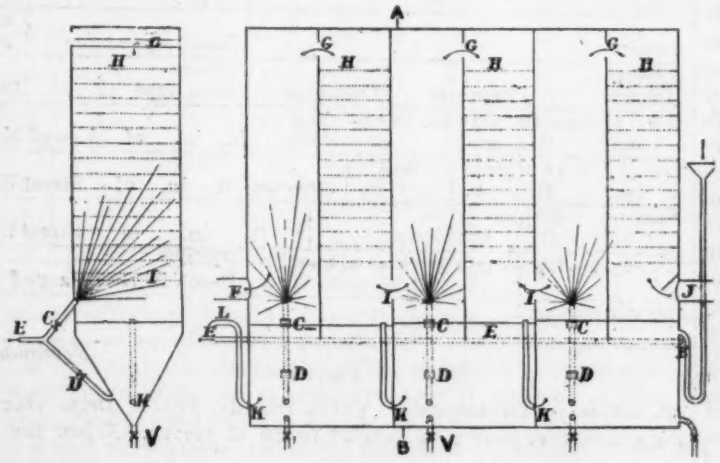

Fig. 3.—Section on Line *A*, *B*.

Fig. 4.—Longitudinal Section.

line being deposited in the lower part of the apparatus, and by opening the valves *V* from time-to-time, these deposits can be removed. Each compartment has an atomizer in the bottom of the left hand half; and the other half, separated by a vertical partition, contains a series of horizontal grids, and acts as a collector for the vapor. To facilitate erecting and cleaning, the atomizer is outside the chamber, and the liquor for vaporization reaches it through the pipe *D*, from the bottom of the compartment (see Fig. 3). Gas or compressed air is admitted by the pipe *E*. Each atomizer is independent, and can be regulated.

As shown by the arrows, the gas enters the apparatus at *F*, and passes before the first atomizer, ascends in the left hand half of the first compartment, flows through the opening *G*, descends through the grids *H*, goes through the lower opening *I*, ascends in the left hand half of the second compartment, after having passed the second atomizer, traverses the grids of the second compartment, and so on, leaving by the outlet *J*. The washing water is fed into the apparatus by the funnel and syphon pipe shown on the right hand side of Fig. 4. It fills the bottom of the third compartment, flows to the next through the pipe *K*, and finally leaves the apparatus saturated, by the pipe *L*. The partitions of each compartment extend into the liquid, forming a hydraulic seal, and compel the gas to pass through the apparatus in a zigzag direction. The vesicular vapor acts in the left hand portion of the apparatus, and the drops of liquid continue to absorb ammonia in the right hand portion, so that the liquor is saturated to its maximum with ammonia.

Through an "Excelsior" washer of 1¾ million cubic feet capacity, the gas will travel at a rate of about 16 inches per second. This is a very high speed compared with other washing appliances, but there is an exceedingly large condensation surface. It is evident the purifying will be complete even if a small number of absorption compartments are employed, and that the ammoniacal liquor will be much stronger than that obtained with the appliances generally in use; the quantity of water required is small, and the washing operation automatic. The washer requires but little power—from ½ to 1½ horse power for one dealing with 1¾ to 2¼ million cubic feet, with a maximum consumption of 44 to 66 pounds of oil per 353,000 cubic feet of gas to be purified. To clean the washer, it is only necessary to close *C* and open *D* and *V* and the deposits can be removed without difficulty.

The washer may be used for removing sulphureted hydrogen, cyanogen, and other impurities, if the appropriate solvent is sufficiently liquid to atomize readily.

A Plea for Accurate Records of Street Main and Service Work. Their Use and Some Methods Employed in Their Preparation.

[Prepared by Mr. Daniel L. Hill, Supt. Records, Consumers' Gas Co., Toronto, for the Sixth Meeting, Canadian Gas Association.]

When we consider the unrecorded mysteries of the past, and view with wonder and amazement the achievements of the ancients, as judged by ruins, we see what a mine of information is locked up in these mute evidences of former greatness.

If we, by finding classified records, could unseal the lips of the Sphinx what a storehouse of knowledge would be unfolded to the engineering profession of to-day! It would solve the mystery of the building of the pyramids, to which our greatest modern achievements appear insignificant by comparison. If we had a record of the methods used in making astronomical observations, without the aid of instruments of precision such as we process; of the hardening of copper; of the wonders wrought in sculpture; and of the numerous other evidences of the high state of cultivation of the Arts and Sciences in ages past which have been unearthed, and which we have tried in vain to imitate, what a flood of light would be shed upon many of the unsolved problems of the world to-day. To exemplify the value of properly classified records one has but to pay a visit to the Patent Office. Here will be found a record of all that has been accomplished in the field of invention, in most minute detail. These records are of inestimable value to the world at large, for here is portrayed the most advanced thought and achievement of the time in every line of endeavor. These facts emphasize the important place that records hold in history and our national life.

What we, as gas men, are most interested in is records of the mains and services under ground, and the necessity of having them accurately located, with the information so arranged as to be easily accessible for future reference. Everyone is familiar with the care and time devoted to the recording of financial operation, yet no doubt many present have knowledge of miles of street mains having been laid, involving an outlay of hundreds of thousands of dollars, of which the records kept are of the most primitive character. The importance of properly recording street work done by the average gas company has been largely overlooked until recent years, when the demands of modern civilization, with its accompanying extensive and complex underground operations, has challenged attention in the larger cities. In the early years of a gas company the necessity of accurate street main and service records is not apparent, for the main systen is usually of the simplest character, and there is usually someone whose memory can be relied upon to supply all the information necessary to locate almost any particular point in the underground system sufficiently accurately for all practical purposes. But as the company's system is extended, and the number of employees increased, with various changes in its personnel, many important underground structures are lost sight of, and the mistake of not transferring this information from memory to paper is manifest. When it becomes necessary to uncover these forgotten portions of the main system, often times much delay and expense are incurred in making a search for the main, particularly if the street has been paved in the meantime. In supplying information to the municipal authorities, or other public utility corporations, accurate information is of the utmost importance; for if extensive excavating, such as is occasioned by trunk sewers, large water mains, etc., come in conflict with our structures because of inaccurate information furnished as to their location, the gas company may be put to considerable trouble and expense to maintain the gas supply, together with any subsequent injury to their structure, with some question regarding reimbursement, because the location adopted was determined from the location of all other underground structures, and the gas company's property would have suffered no injury had the information fornished been correct.

Not only is the value of accurate information regarding the loca-

tions and sizes of street mains and services better appreciated, but the knowledge gained by faithful portrayal of all main work is also valuable. The operations of a large company render it impossible for the general foreman to see all and every piece of work executed, and he must rely in a large measure upon the gang foreman for the faithful performance of much of it. The foreman often does not appreciate the importance of good work. In this way careless workmanship is covered up and forgotten, where careless recording prevails; but where careful and efficient methods are used in the preparation of records, they vividly bring home to the foreman any deficiencies in his work. Knowledge that his workmanship is under constant surveillance places the gang foreman always on the defensive, and keeps him up to the established standard of excellence in the performance of his duties. From these records the engineer is able to lay out his main laying operations with intelligence and despatch, as they show precisely where to begin, and what material is necessary for the proper prosecution of the work, thus obviating tedious delays waiting for material, the necessity of which is not apparent until the main to be connected is exposed. With a comprehensive system of records the workman may be instructed in great detail as to the performance of their duties. The ordinary workman, let him be mechanic or laborer, when left to his own resources, seldom performs his work in the most economical manner, either in time or material. Even on ordinary labor, a very decided advantage is gained by properly instructing the workmen regarding the duties they are called upon to perform. When these instructions are the result of careful study of local conditions, together with the records of the contiguous structures involved, the gain in efficiency is usually beyond our highest expectations. Almost every operation can be performed in several different ways, but it is evident that they are not all equally efficient. Consulting the record of the finished structure will disclose just how closely instructions have been adhered to in their execution. By taking the fullest advantage of the utility of the records and reports furnished by the foreman or street clerks, the engineer is able to plan his work clearly, well in advance, and to follow its progress daily, leaving him more time to devote to his other duties.

As the majority of the work is of similar character, that is, the labor and material for laying one main are almost identical with that of another; by a study of the record of these structures standard methods are involved, and, with standard lines of procedure together with standard equipment, the results obtained are highly gratifying. Each man then becomes a specialist in his particular line of work, and the quantity of work accomplished is very materially increased.

The preparation of street main records is frequently left to the foreman; and one able to efficiently perform the duties devolving upon him as foreman, and at the same time prepare an adequate record, is indeed a "find." The nature of his duties unfits him for any but the simplest clerical work, such as progress reports and time-keeping, and oftentimes these are accepted with much misgiving as to their accuracy, while in other respects he may have proved himself thoroughly competent. His mind is centered upon the physical aspects of the work, and the question of records is of secondary importance to him. The clerical part is looked upon as an unpleasant duty which is to be disposed of in the briefest manner possible, but still keep within limits of the demands made upon him for such information as is absolutely essential. The natural consequence of such procedure is that, when information is wanted, the record is found to be partially, if no wholly, unreliable. Intelligent consideration of the subject of main laying is practically impossible in the absence of adequate records, but with complete data it becomes very much simplified. To ensure a complete and accurate return of the work accomplished, this work must be intrusted to someone whose duty is to collect and prepare such information, and having entirely independent status so that collusion with the foreman is impossible.

When an order is given to execute a piece of work, it is but simple justice to the workmen that they have detailed instructions how to proceed. These instructions should be made under the direction of the engineer in charge, after which they are turned over to the foreman for execution.

The question of economy enters largely into the problem of records in a small company; but, with the proper forms placed in the hands of those engaged in the execution of the physical part of the street main and service work, and the work of properly filling each blank space of the form made as much a part of their duty as the laying of the structure, it is quite astonishing how complete and valuable a record system may be built up at little cost. For a small company the annual output of which is under 100 million feet, and with records of existing mains incomplete, one of the simplest and most convenient forms of main record is a 3 by 5 card as shown in Fig. 1. These

355 1a-3-12 MAIN RECORD.

Nearest house No.....St.
Date.....191
Nature of work
Size.... .. Depth to top.... ...ft .....ins.....Soil.....
Location of main.....ft.....ins.....of....line of.....St.
Location of joint.....ft .....ins.....of....line of.....St.
Joints recaulked.....Kind of joint.....Drips.....Bell faces.....
Remarks.....

Fig. 1.

can be carried in the foreman's or superintendent's pocket, and any exposure of the main system can be entered at once and turned in to be filed away for reference. Should a complicated connection, or a structure difficult to describe, be exposed, a sketch on the back of the card could be made showing the details.

This information is augmented by the records turned in by the service men, Fig. 2. Here the main location is entered, together with

SERVICE RECORD.

No.			Order No ..... Date 191
Owner			Yes. Meter signed for No.
Nature of work	Supplies	Occupied	Work completed 191
Size in.	Length laid ft. in.	St. line to bldg. ft. in.	ft. in. of line of bldg.
Tap in.	Kind of joint ft. in.	Soil	Drip set ft. in. of Street line.
Main in.	Depth ft. in.	Drips	ft. in. of Street line.
R'dway paving	Open'gs	Size of open'gs	FROST Depth ft. in. Charge $ .00
Sidew'k paving			

Foreman.

Fig. 2.

the necessary service data. Valve records, Fig. 3, Drips records Fig. 4, are other simple but useful forms of record. When the in-

VALVE RECORD.

Nearest house No. St.
Date 19
Location Feet Ins. Of Line.
Ft. Ins. Of Line of St.
Size of Main Depth to Top Ft. Ins.
Ft. Ins. Of Line
Kind of Valve
Opens to the No. of Turns
Remarks:
Signed.....

Fig. 3.

DRIP RECORD.

Drip No.
Nearest house No. St.
Nature of work Date.....191
Location of box ft. ins. of line of St.
" " " " " " "
" " " " " " "
Style Box cover Capacity qts.
Main in. ft. ins. of line. Depth ft. ins.
Remarks:
.....
.....
.....
.....
680-5M-2-13. Signed.....

Fig. 4.

formation relative to the main locations is complete for each city block, or given unit length of main, say 100 feet, this information may be transferred to the card shown in Fig. 5, which is ruled. All cards, except the last, are filled in by the foreman on the job, which is entered up by the man in charge of the records in the office. By having the first four cards of the same size, and on different colored paper, the work of filing is greatly facilitated both in economy of space and of time, for in this way they can be filed together, and one street index is all that is necessary.

When new mains are being laid a ruled book similar to Fig. 6, is very useful. As the work proceeds every detail is entered, describing its nature and location. The character and legibility of these returns

Main on... Side of.....St.
From.....to.....

House No.	Location From	Main Location. Form St. Line	Depth	Date. Work Finished.	Nature of Work.

Fig. 5.

Main..... ...Side
From.....
Commenced.....19 Date made.....19 Finished..... 19
No. To Classification

Length. Feet.	Ins.	Size.	Location. From St. Line	Depth.	Description.

Fig. 6.

would determine whether this information should be transcribed. From this form of record a graphical transcription might be made as the circumstances warranted. This record could remain in book form, but its usefulness is much enhanced, if made up in card form and filed away with data in Fig. 5.

A map showing the streets and other data pertaining to the town or city is usually available, upon which a general plan of the main system may be shown. The different sizes of mains may be indicated by lines of varying thickness or other characteristics, such as dash-and-dot, or color. The scale of the map may be too small to admit of showing the mains in detail, in which case some form of index might be necessary, such as the numbering of each unit length of main. This reference number must conform to the number of the record on file, the map itself indicating under what street index to look for the record. Should the number refer to a book record a "dummy" card is placed in its proper place in the street main file, which will furnish the necessary information for finding the record of the main in the book.

With the proper handling of such a system of records useful information may be obtained as to the operation of each run of main, such as breaks, leaks, etc., and upon whom to place the responsibility. In a small company, when the street main work is confined to one or two gangs, a record of the work performed each day is unnecessary; but where the work is widely separated some form of report by the foreman to the office might be useful, either daily or weekly, as the circumstances demand. A form printed on the back of a postal card, Fig. 7, would answer all purposes.

In a large company, where the ramifications of the street main system are varied and complex, the information derived from a well-organized record system amply justifies its existence and maintenance. Its usefulness is more apparent in a large city than in a small one, owing to the number of companies using the streets for their underground structures. Unless there is some efficient method of recording this street work the location of the company's structures would be lost, due to the diversion from a straight line, when turning around sewer inlets, manholes, culverts, etc. In order to obtain the desired results in the preparation of such records as will adequately cover the needs of a large undertaking, the personnel should consist of men of such mental caliber and training as will enable them to thoroughly understand the practical application of mechanics as well as drawing.

Graduates from some manual training or technical school are the type of men capable of rendering the best service in a position of this

DAILY PROGRESS REPORT.
STREET MAIN WORK.

.....19....
Nature of work.....

Ft.	In.	of	St. Line.	Side Line.		
On.....						
From.....						
To.....						
Order No.....						
Classification.....						
Size main.....						
Total length.....						
Back filled.....						
Pipe exposed.....						
Trench open.....						
Pipe strung.....						
Valve or Drip.....						
Commenced.....						
Finished.....						
Removed or abandoned.....						

Remarks.....
.....
.....
.....
Foreman.

Fig. 7.

nature. It might not be amiss to mention here that this knowledge, together with the experience gained by coming in intimate contact with the actual main and service operations, makes for higher efficiency in this end of the business. Men of this capacity and training form the most desirable source upon which to draw for possible executives and semi-executives for a distribution department, to whom the usefulness of records would be apparent to the fullest extent. For, after all, the value of any information is governed by the extent to which the knowledge gained is applied in actual practice. The men, mentioned above, are supplied with bicycles, or motor cycles, and are known as street clerks. Their duties, besides making sketches, cover such work as taking the workmens' time, supplying the foremen with information regarding underground structures, preparing paving cards, establishing street lines, etc.

One street clerk should suffice to handle properly the work performed by two or three gangs of men within the limits of the average large city. The field, or original, sketch record is made in a transit book, and all new mains and large services are sketched in this book. Miscellaneous main work, such as lowering due to change in street grade, or other alteration, involving the diversion of the main, is also sketched, as well as systematic or continuous overhauling, but recaulking individual joints can be shown on Fig. 1. The original sketch record of which Fig. 8 is a sample, shows every structure encountered as well as the actual main being laid. The different character lines show new and old pipe, other data being described. From this book the sketch is transcribed on a 5 by 8 card record, which is quadrille ruled for convenience in laying out the work. Fig. 9 shows the completed sketch, each foreign structure is shown in a different color, as is also old or new pipe, rubber stamps being used to protray the bells and specials.

All specials, such as drips and valves, are located on separate cards, similar to the one shown in Fig. 10.

Each opening is reported by the street clerk on a card form, Fig. 7, which shows daily the actual progress of the work done by each gang in the city, with the general location of the pipe, a card being sent in for each job. He also reports the material used and checks the pipe delivered on the street. The duty of recording the data pertaining to services is performed usually by the service foreman on a card similar to Fig. 2. The back of this card shows the men employed, their time, and material used—see Fig. 11. The location of the main is marked before the card is given to the foreman for execution. By insisting on the filling in of every blank space the foreman is in possession of all the necessary information to proceed with the work without delay, and upon its completion all the necessary data is available. This also makes for good workmanship, for should any weakness develop the responsibility is fixed.

For showing the general plan of street work the regular insurance Atlas is available for most cities, and should be secured without colors if possible; that is, black lines on white paper. These plans are usually bound in book form, and drawn to a scale of 200 to 300 feet to the inch for the outskirts, and 50 feet to the inch for the cen-

(*Continued on page* 186.)

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[Special Editorial Correspondence, by Telegraph.]

TWENTY-SECOND ANNUAL MEETING, MICHIGAN GAS ASSOCIATION.

DETROIT, MICH., September 17, 1913.

The weather man was right in his prediction that yesterday would witness the arrival of a warm wave from the southeast. It was warm and close in this beautiful city, which grows more attractive as it grows older and, paradoxical as it may seem, grows stronger. However, as the day wore these conditions bettered. Sunshine succeeded gloom, and a west wind scattered the humid airs that were shaking ones belief in the knowledge that the sun was getting ready to cross the line. The assembly hall of the Pontchartrain was the scene of the Wolverine Gas Men's Twenty-second annual, and that earnest, capable engineer and gentleman, Warren S. Blauvelt, had the satisfaction of noting that, as the gavel sounded at 10:30 o'clock 150 had responded to the annual summons. Of course, the only Glen R. Chamberlain was at the Secretary's desk without a single bandage about or on him. The President in fitting personal way attacked the programme in resolute style and this constitutes the order in which the day's work was done: The report of the Executive Committee had for its main feature the recommending to membership of 30 odd applicants. The newcomers having been introduced and welcomed, the reports of the Secretary and Treasurer were taken in hand. The first had to do with routine, as did the second. The latter, however, revealed the comfortable balance of $2,000 or so, fully one half of which was traceable to the results of the memorable joint meeting last year with the Canadian Association. Several standing committees having been named, and Mr. A. P. Ewing having, on behalf of the Entertainment Committee announced the programme arranged on on such account; Vice President Douglas assumed the Chair and President Blauvelt read his message. Its subject matter was quite different from that which one usually hears in connection with such documents, and your correspondent decidedly inclines to the view which was expressed by more than one speaker when the matter of the appointment of a committee to consider it was being discussed, that Mr. Blauvelt had made a record therewith. However, the old adage hath it that every eye forms its own beauty, so your correspondent refers your readers to the exact thought of the message as it appears elsewhere in your current issue. Personally the writer unhesitatingly declares it was pleasurable to listen to it, and that it will be of great avail to study it. Next came the paper list. First was the thesis on "Educating the Public," by Scholarly Ernest F. Lloyd, who baptismal sponsors were surely near the mark when they put upon him his initial name. His story was even as his practice, and although its framing was rather ethical he nevertheless was rewarded by a discussion that brimmed with interest and that was in no sense polemical. Dr. White, of the University at Ann Arbor, contributed a most interesting chapter thereto.

The day's technical session was closed by a very clear exposition from Mr. Alonzo P. Ewing, of "Gas Advertising." To say that the subject was handled by an adept in such respect is putting it down accurately. He, too, was rewarded by an animated discussion which finally became involved in a debate on whether the plan proposed for the conduct of a National Gas Advertising Campaign along the lines suggested by the National Commercial Gas Association should be indorsed. The decision thereon was eventually put over to be acted on finally to-day or to-morrow.

After luncheon the delegates were free to enjoy themselves as best befitted their fancies. Automobiles were always at the command of those who elected to travel in or about the lovely nature examples that wind through and encircle this beautiful and progressive city, or to visit any of the many hives of industry that have made her famous in the world's marts. The large majority elected to accept the invitation of the Ford Motor Company to examine its maze of mammoths shops. It is out of the question to here even attempt to describe the number, magnitude and range of the buildings devoted to the work of this great manufacturing concern; but, merely to give a bare idea of this wonderful aggregation, let me quote this from the September issue of the "Ford Times" in describing an addition to its wonderful series of structures: "Between the two buildings now being added to the factory there will be four big cranes in operation. The buildings are to be each 900 feet long and 6 stories high. Between them now lies a railroad track sunk in a concrete trench, so that the floor of the freight car is on a level with the ground, facilitating the loading of automobiles and the unloading of materials, doing away entirely with a shipping deck or platform. Over the intervening space between the two buildings will be a glass roof, and operating on a track level with the sixth story will be four 5-ton cranes." But this is enough to afford a glimpse of the hugeness of it all. And even in this great concern is the usefulness of the gas maker apparent. Millions of cubic feet of producer gas and illuminating gas are used daily, and here can be seen the greatest gas engine plant in the world. The story of the latter will be partly told later. The visitors were shown through the mammoth estabtishment rather as purchasers of cars than as transients on their way of examination, and those who availed themselves of the company's generous invitation were repaid many times for the hours so spent. The night was a beautiful one and, although a visit to the Keith playhouse in Detroit was the set affair, those who sought other diversion did not lack opportunity plentifully available.—C.

DETROIT, MICH., September 18, 1913.

Never did finer morning greet one than that of yesterday. The winds that caused the great inland seas to foam and churn brought with them the breath of nature that makes for vigor and forcefulness. Attuned to these were the spirits of those who assembled at 10:30 o'clock to carry on the good work of the Michigan Association. The attendance had largely increased, at least 225 being seated when President Blauvelt announced the opening. The preliminaries were in this order: A fraternal telegram from Mr. Arthur Hewitt, of Toronto, Canada, regretting that he could not be present in person, was followed by a report from Prof. White, detailing substantial and satfactory progress respecting the Gas Fellowships, maintained by the Association in the University at Ann Arbor. The Association has earned fame by the instituting of these scholarships, now having a 13 years record of success with those who gained them. These matters disposed of, we settled comfortably and expectantly to listen to the lecture on "Gas Salesmanship," by Mr. Herbert Casson, and these assembly rooms never trembled more than when rehearing the salvos of applause that greeted the speaker when the tale was told. The lecture was followed by the unanimous adoption of the resolutions indorsing the plan of the National Commercial Gas Association's Nation wide advertising plan. In furthering this cause Mr. Elcock made a telling speech explanatory of the standing and worth of the course in gas salesmanship now being maintained by the National Commercial Gas Association. This brought us to adjournment.

The afternoon was pleasantly spent in divers ways. Auto rides and routes *ad libitum* were tried to points of interest, not the least of which was that to the water works, and this leads to the thought that in the near future Detroit may have her water supply from Lake Huron. That certainly will be so if big "Jim." Lynn has his way. Not James T., remember for in this instance he is little "Jim."

At eight in the evening 220 diners filed into the assembly hall, now transformed into a huge dining room, with a spacious center bounded by long tables and planked at the foot by a platform whereon an orchestra did it's best. The dinner was entirely informal, and when the tobasco was called for to assist digestion, the only William S. Guitteau introduced and directed a vaudeville show that was enjoyed from start to finish. Aside from it's entertainment your scribe positively assests that not a thing was done that could cause the criticism of a Parkhurst or incite the ire of a Pankhurst. The end was reached at eleven and all was well. To-day's will have to be concluded in your next.—C.

[Special Editorial Cor respondence, by Telegraph.]

THE 1913 SESSION OF THE PACIFIC COAST GAS ASSOCIATION.

SAN JOSE, CAL., Sept. 16, 1913.

The 21st annual convention opened this morning in Elk's Hall, when more than 125 members faced President Vance and Secretary Bostwick. The papers previously announced for presentation at the meeting were approved, and the first business presented was the Report on the 1915 International Gas Congress. Chairman Britton read the report which embodied an account of the activities of Mr. E. C. Jones, who attended the 1912 meeting of the American Gas Institute as our special delegate. Mr. Jones added some remarks on the later progress made in this matter, indicating that it was being favorably received and endorsed. In his address, which was next presented, President Vance also referred to the Gas Congress, and to the success of the Gas Engineering Course at the University of California that is sustained by voluntary contributions of members of the Association. He reviewed the Western developments in gas manufacture and distribution, and the natural gas outlook in California, and his deductions were heartily approved and applauded. Past Presidents L. P. Lowe, John Clement and F. A. Leach, Jr., were appointed as Committee on President's Address, to report later. To continue the work of the Novelty Department, heretofore handled by an appointed editor, a Committee on Gas Exhibits was created, Messrs. C. B. Babcock, R. J. Thompson, B. S. Pedersen, Paul Haugh and H. P. Pitts

being designated to serve thereon. It was also voted to amend the by-laws, by making the period of the conventions 4 days instead of 3, in order to give more time to the consideration of the business of the Association. The first set paper was that of Mr. Leon B. Jones, on "Oil Gas Manufacture." Mr. Jones is Assistant Gas Engineer of the Pacific Gas and Electric Company, and was able to give a very interesting account of the marked improvements that have been made in this branch of manufacture. The very considerable discussion evoked indicated the value of his contribution. Appropriately following was the paper by Mr. H. Pabst, of Portland, Ore., on "Standards of Quality and Service for Oil Gas." So important did he show his subject that a committee with the same title as his paper was appointed to follow up these matters. Messrs. John A. Britton, E. C. Jones, H. Pabst, W. E. Barrett and Professor C. L. Cory were appointed as its members. Mr. Pabst not being in attendance, his paper was read by Mr. L. P. Lowe. A very interesting discussion was provoked by Mr. L. A. Wright, Jr.'s paper on "Gas Company's Public Policy, which was the last subject taken up to-day. Meeting then adjourned until Wednesday morning.—B. O. S.

SAN JOSE, CAL., Sept. 18, 1913.

The first paper at the Wednesday morning session was that of Mr. D. E. Kepplemann, on "Modern Gas Distribution and the Part Played by the Automobile," and it brought out an interesting discussion. Professor Cory, for the Committee on Engineer's Degree, gave in detail what the University of California has accomplished, and announced that Professor R. S. Tour. B.S., University of Michigan, had been appointed Instructor in Gas Engineering; and showed a plan of the labratory and equipment that has been provided for the preliminary work for this degree. Professor Tour was introduced and spoke of the work accomplished at Ann Arbor, and the pleasure he felt in work he was to undertake in California. At the afternoon session Mr. J. B. Redd presented his paper on "Industrial Uses of Gas," and then Dr. A. C. Humphrey's communication on Rate Making was read by Mr. E. C. Jones. Covering as it does a subject of such vital importance, it was seriously discussed, and at great length. Mr. C. S. Babcock's paper on Why Gas Companies Should Handle Arc Lamps, was received with much interest.

The reports on Wrinkles and Experiences were passed over and those of the Committees on President's Address and on Secretary-Treasurer report, received and filed.

The Nominating Committee recommended the selection of Mr. C. S. Vance as President; Mr. E. C. Jones, Vice-President; Mr. Henry Bostwick, Secretary; and Messrs. J. A. Britton, W. G. Kerkhoff, Wm, Baurdhyte, F. A. Green and C. B. Babcock, as Directors; and those gentlemen were duly elected. Long Beach, California was decided upon for next year's meeting, and the President announced these appointments: Wrinkle Editor, Mr. H. W. Burkhart; Experience Editor, Mr. John Clements; Librarian, Mr. E. C. Jones; and announced that the enlarged Committee on Gas Congress would be Messrs. J. A. Britton, W. K. Cline, G. H. Collins, L. P. Lowe, John Martin, E. C. Jones, F. A. Cressy, Jr., and W. P. Hutchinson. Also that the Advisary Board would include Messrs. Sherwood Grover R. L. Clarke and W. J. Dorr.

The session then adjourned; the members assembling again at 7.30 for the annual banquet. This also was thoroughly discussed and digested, and the whole convention characterized as the most successful of the Association.

At the banquet the Committee on Gold Medal Award, which consisted of Messrs. Burkhart, Leach and Newbert, reported that "We believe that the paper by Mr. Leon B. Jones presents original research and endeavor of sufficient importance to the gas fraternity to merit the award of the Association medal;" and their verdict was endorsed by all present. To-morrow we will be entertained by the Pacific Gas and Electric Company on a ride through the beautiful Santa Clara Valley, and the Au Revoir.—B. O. S.

BRIEFLY TOLD.

DEATH OF MR. JOHN HORNBY.—Many of the American fraternity will sorrowfully hear of the death of Mr. John Hornby, who passed away, at his late residence, 56 Windsor Road, Forest Gate, E., London, England, the morning of Saturday, August 23d. His fortitude, during an illness that covered quite 3 years, while strikingly manifest to his intimates, was quite characteristic of the really noble gentleman that his every way and manner proved. His increasing physical disability obliged him to resign (February last) from the active engineering staff of The Gas Light and Coke Company, London, after a continuous service with that great corporation lasting 34 years. All too young he was to be called from the scene of his activities, but the good that he accomplished in life, through the medium of his well-trained thought and facile pen, if for no other cause, will live after him—a spurring testimonial to the young; yes, even to the old as well. Deceased was born in Warrington in 1857, he obtained his education in the Warrington Grammar School' and on his graduation therefrom he studied the principles of gas engineering, first under the tutelage of the late Mr. T. A. Drew, and later on under Mr. Henry Roberts, successively in engineering charge of the Widnes gas plant. Having completed his identures he remained as assistant to Mr. Roberts for a short period. In 1879 he became assistant to the late Mr. Robert Morton, who was then Engineer-in-Chief of the old London Gas Company, the plant of which was located on the plot now covered by the Nine Elms Station of the Gas Light and Coke Company. Later (1892) he became attached to the Beckton plant, in the capacity of assistant engineer, Nine Elms plant. He then substituted (1908) for Mr. Berkett at the Bromley plant, and on the latter's return was named Assistant to Chief Engineer, Westminster works. Deceased, however, was best known to the American fraternity from his writings. He organized the initial Class in Gas Manufacture, and these works are directly traceable to his studies: "The Gas Engineers' Laboratory Handbook;" "Hornby on Gas Manufacture;" and the world famous "Self-Instruction for Gas Students." These works have had wide circulation in America. He is survived by Mrs. Hornby, 3 sons (all of whom are engaged in the gas industry) and 4 daughters. Interment was made in the City of London Cemetery, the afternoon of the 26th ult., following succeeding solmnly simple service in the Church of St. Emanuel, Forest Gate, London.

INTERNATIONAL COMMISSION ON ILLUMINATION.—The work of the International Photometric Commission is to be broadened and hereafter carried on by an International Commission on Illumination. The preliminary meeting to formulate the details of its organization, and its work, was held in Berlin, Germany, August 27th to 30th, 1913. Professor Vautier presided at the session, which were attended by representatives of gas and electric, and illuminating engineering bodies of nine countries. America was represented by Dr. Bell, Dr. Hyde, Dr. Kennelly, Mr. Mailloux, Mr A. S. Miller and Dr. Sharp. A draft of statutes was presented and adopted, subject to ratification by the technical institutions of the countries represented.

ANNUAL MEETING, THE EMPIRE STATE GAS AND ELECTRIC ASSOCIATION.—Secretary E. H. Chapin informs us that the annual meeting of the Empire State Gas and Electric Association will be held in the United Engineering Societies Building, 29 West 39th street, New York, on Thursday, October 2d. At the morning session the President will review the work of the past year and will make some suggestions for next year. Reports of other officers and committees will be received. The plans for advertising compaigns of the National Commercial Gas Association and the Electric Development Society will be explained and discussed. There will be a paper on the "Future of Association Work." Luncheon will be served to the delegates in the banquet room of the Engineers' Club. At the close of the luncheon, addresses will be delivered by Chairman Decker, of the Public Service Commission, Second District, and by Commissioner Maltbie, of the Public Service Commission, First District. The afternoon session will be devoted to the two subjects of "Accident Prevention" and "Fire Prevention" with illustrated talks on each.

GAS METERS.—The "get-together" meeting of the New York Section was on Thursday last. About 75 met at the Brooklyn Union Gas Company's Demonstration Building on Livingston street, and went from there by special car, as guests of the Brooklyn Company, to Sheepshead Bay for a shore dinner. It was a good dinner with lots of "fellowship." Mr. F. L. Godinez gave a unique talk on Lighting; Mr. Bigelow spoke of Lighting, as did Mr. Crane and Mr. Tully Wilson. Secretary Smith told them how well they were getting along, and it was late when they started homeward.

CURRENT MENTION.—

THE Seventh Annual Convention, Illuminating Engineering Society, opens this morning in the Hotel Schenley, Pittsburgh, Pa. Its 4 days sessions will be reported by wire to the JOURNAL, appearing in next weeks' issue.

THE National House-wives League was tendered a reception on Tuesday last, by the Consolidated Gas Company, in its model apartment in the Gas Appliance Display Rooms on East 42d street, New York city. Mrs. Julian Heath, President of the League, received the invited guests, assisted by her fellow officers and Mr. H. B. McLean, Manager ef the New Business Department, Consolidated Gas Company. Refreshments were served in the dining room of the apartment, and the latest gas appliances for lighting, cooking and general convenience shown by the Company's chief demonstrators.

THE Hastings (Neb.) Gas Company has awarded to The Gas Machinery Company, of Cleveland, Ohio, the contract for the construction of an additional 5-foot water gas set. The original set was placed by the same contractors some years ago; but Mr. A. W. Borden's well-directed efforts have so increased the output in Hastings that the new set became an absolute necessity.

AT the close of June, 1908, the Consolidated Gas, Electric Light and Power Company had 87,816 separate gas consumers who consumed 2,723,319,300 cubic feet; at the close of June 30, 1913, the consumers numbered 112,688, and their use of gas totalled 3,611,312,180 cubic feet. A reassuring thing in this connection, too, is that the average per consumer in 1908 was 3,100 cubic feet, whereas in 1913 the average had gone 3,200 cubic feet.

THE Portland (Me.) Gas Light Company has closed a contract with the Didier-March Company of Perth Amboy, N. J., for the construction of a carbonizing plant, with a daily capacity of 1,000,000 cubic feet. The installation will be of Glover-West Continuous Vertical Retorts, with new coal and coke handling machinery, storage bins, and screening and separating plants. Work on the foundations will be started immediately, and it is expected that the output from the new plant will be available within the next 12 months.

(*Continued from page* 183.)

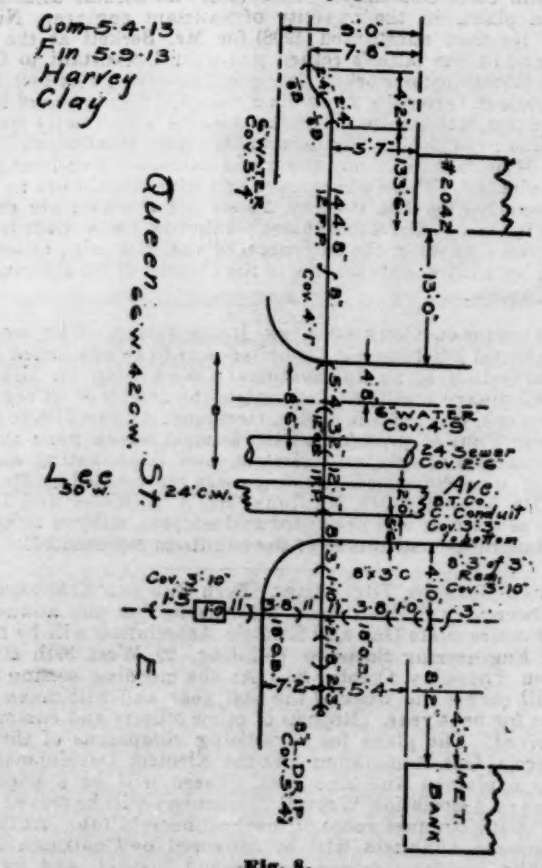


Fig. 8.

8" — N. — QUEEN ST. E.
— LEE AVE — 138' WEST.
5-4- 5-20- 5-9-
NEW

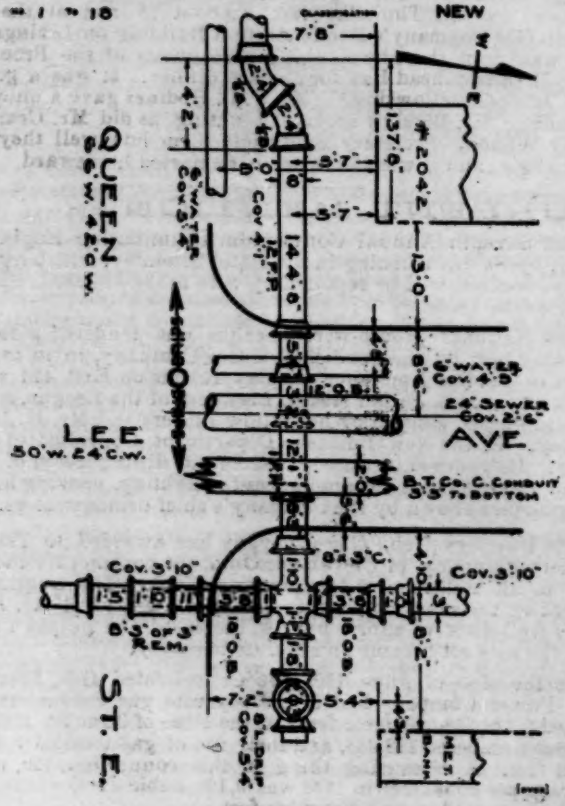


Fig. 9.

tral portions. Upon these plates the street main plan may be shown in water color, which is easily erased in the event of a change in size or color, care being exercised in the adoption of a series of colors that the smaller structures are shown in the lighter colors; so that, in case the smaller mains are replaced with larger ones, the darker color for the larger mains will obscure any evidence of the former

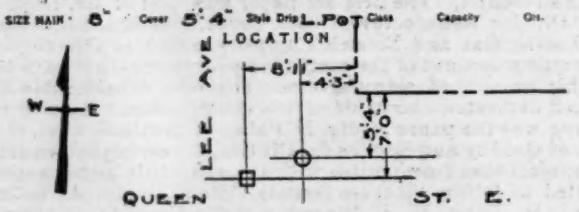
DRIP RECORD.

Drip No. _____ Nearest House No. 2044 QUEEN ST. E. N.E. cor. LEE AVE.

Nature of work LAYING NEW MAIN. 1913.

SIZE MAIN 8" Cover 5'-4" Style Drip L. POT Class Capacity Cu.

LOCATION



Remarks.

Signed E A. MILLER

Fig. 10.

Main	Depth	Ft.	In.	Ft.	In.	of	St. Line
Men Employed on Work					No. of Hours	Cost	

Material		Size	No. Used		
Pipe	Cast Iron				
Tees	"				
Sleeves	"				
Bushings	"				
Reducers	"				
Pipe	Wrot. Iron				
Nipples	"				
Tees	"				
Ells	"				
Caps	"				
Plugs	"				
Bushings	"				
Couplings	"				
Connectors	"				
Total					

364-5M-6-13

Fig. 11.

size. Services may be shown on the central portions where the larger scale permits; but this is of doubtful value, as the service records described above, if filed in the numerical order under the proper street name, will meet all the demands for reference. Of course, no attempt is made to show the main location in detail on these sectional plans, but sufficient detail is possible to form an index as to whether there is a sketch on file or not.

These plans may be kept in the original book form in which they are bound, but they make a bulky volume for ready reference. One method which has proven its usefulness and capability of expansion, is to have these section plans mounted on cardboard and filed away in a cabinet designed to receive them. The first cost is somewhat high, still the outlay has been found by experience to be fully justified by the increased convenience and added facility in handling. With a system of records of this character nearly every phase of the underground operations of a large company may be analyzed and tabulated, being of sufficient flexibility for application to any situation with such minor alterations as will meet local conditions. Of course, the preparation of these records involves considerable outlay, and the maintenance of such a system is only warranted when every advantage is taken of the information collected, for if such is not the case, its purpose is largely defeated and a much simpler form of record might serve the purpose.

Waterproofing Concrete.

The Committee on Waterproofing Materials, American Society of Testing Materials, has not gone far enough to warrant its formulating definite specifications for making concrete structures waterproof; but certain results have been reached that may be of assistance in securing impermeable concrete.

The work of the committee divided naturally into these three branches:

(1) Causes of permeability, and methods of avoiding them.
(2) Waterproofing by the addition of other substances.
(3) Subsequent treatment of exposed surfaces.

In the laboratory and under test conditions, using properly graded and sized coarse and fine aggregates, in mixtures ranging from 1 cement, 2 sand and 4 stone, to 1 cement, 3 sand and 6 stone, impermeable concrete can invariably be produced. But the fact remains,

nevertheless, that the reverse often obtains in actual construction, permeable concretes being found even with 1 cement, 2 sand and 4 stone mixtures, and are of frequent occurrence where the quantity of the aggregates is increased. This the committee attributes to:

(*a*) Defective workmanship, resulting from improper proportioning, lack of thorough mixing, separation of the coarse aggregates and cement in transporting and placing the mixed concrete, lack of density through insufficient tamping or spading and improper bonding of work joints, etc.

(*b*) The use of imperfectly sized and properly graded aggregates.

(*c*) The use of excessive water; causing shrinkage cracks and formation of laitance seams.

(*d*) The lack of proper provision to take care of expansion and contraction; causing subsequent cracking.

Properly graded sands and coarse aggregates are rarely, if ever, found in nature in sufficient quantities to be available for large construction, and the effect of poorly graded aggregates, in producing permeable concrete, is aggravated by inefficient field work. Even if the added expense of screening and remixing the aggregates could be afforded so as to secure proper granulometric composition to give the density required to make untreated concretes impermeable, it is seemingly a commercial impossibility on large construction to obtain workmanship even approximating that found in laboratory work. The committee finds that in consequence of these conditions, substances calculated to make the concrete more impermeable—either incorporated in the cement or added to the concrete during mixing—are often used.

While it has been impossible to test all of the special waterproofing compounds on the market, it has investigated a sufficient number of these, and of very finely divided mineral products, to form a general idea of the value of the different types. The committee finds:

(*a*) That the majority of patented and proprietary integral compounds tested, have little or no immediate or permanent effect on the permeability of concrete; and that some have an injurious effect on the strength of mortar and concrete in which they are incorporated.

(*b*) That the permanent effect of such integral waterproofing additions, if dependent on the action of organic compounds, is very doubtful.

(*c*) That in view of their possible effect, not only upon the early strength, but also upon the durability of concrete after considerable periods, no integral waterproofing material should be used unless it has been subjected to long-time practical tests under proper observation, to demonstrate its value, and unless its ingredients and the proportion in which they are present are known.

(*d*) That, in general more desirable results are obtainable from inert compounds acting mechanically, than from active chemical compounds, whose efficiency depends on change of form through chemical action after addition to the concrete.

(*e*) That, assuming average quality as to size of aggregates, and reasonably good workmanship in the mixing and placing of the concretes, the addition of from 10 to 20 per cent. of very finely divided void-filling mineral substances may be expected to result in concrete which, under ordinary conditions of exposure, will be found impermeable; provided the work joints are properly bonded, and cracks do not develop on drying, or through change in volume due to atmospheric changes, or by settlement.

While external treatment of concrete would not be necessary if the concrete itself, either naturally or by the addition of waterproofing material, was impermeable, it has been found in practice that in large construction, no matter how carefully the concrete itself has been made, cracks are apt to develop, due to shrinkage in drying out, expansion and contraction under change of temperature and moisture content, and through settlement.

It is, therefore, often advisable on important construction to anticipate and provide for the possible occurrence of such cracks, by external treatment with protective coatings. Such coating must be sufficiently elastic and cohesive to prevent the cracks extending through the coating itself. The application of merely penetrative void-filling liquid washes will not prevent the passage of water due to cracking of the concrete. The committee has, therefore, divided surface treatment into two heads:

(*a*) Penetrative void-filling liquid washes.

(*b*) Protective coatings, including all surface applications intended to prevent water coming in contact with the concrete.

While some penetrative washes may be efficient in rendering concrete waterproof for limited periods, their efficiency may decrease with time, and it may be necessary to repeat such treatment. The committee, therefore, believes that the first effort should be made to secure a concrete that is impermeable in itself, and that penetrative void-filling washes should only be resorted to as a corrective measure.

While protective extraneous bituminous or asphaltic coatings are unnecessary, so far as the major portion of the concrete surface is concerned, provided the concrete is impermeable, they are valuable as a protection where cracks develop in a structure. It is, therefore, recommended that combination of inert void-filling substances, and extraneous waterproofing be adopted in especially difficult or important work of any nature.

Considering the use of bituminous or asphaltic coatings, the committee finds:

(*a*) That such protective coatings are often subject to more or less deterioration with time, and may be attacked by injurious vapors or deleterious substances in solution in the water coming in contact with them.

(*b*) That the most effective method for applying such protection is, either the setting of a course of impervious brick, dipped in bituminous material, into a solid bed of bituminous material, or the application of a sufficient number of layers of satisfactory membranous material cemented together with hot bitumen.

(*c*) That their durability and efficiency are very largely dependent on the care with which they are applied.

Such care refers particularly to proper cleaning and preparation of the concrete to insure as dry a surface as possible before application of the protective covering, the lapping of all joints of the membranous layers, and their thorough coating with the protective material. The use of this method of protection is further desirable because proper bituminous coverings offer resistance to stray electric currents.

In conclusion, the committee points out that no addition of waterproofing compounds or substances can be relied upon to counteract completely the effect of bad workmanship; and that the production of impermeable concrete can only be hoped for where there is determined insistence at all times on good workmanship.

Some Studies in Lighting.

Your readers will freely recall the command of Diogenes to Alexander: "Get out of my light;" and the dying words of the great philosopher and poet, Goethe: "Light, light." If so this must frequently occur to one that the love of life is, step-to-step, the same as the love of light. The constant struggle between gas and electricity is another evidence of this, from the weak light of the old fishtail burners to the new, interrupted, "cold" tungsten of Professor Dussaud. The Auer mantles were thought to constitute final triumph for gas lighting; but novel gas effects are newly discovered, and will continue to be discovered from time-to-time until the end thereof. Public street lighting feels this healthful competition greatly, and no small item of municipal expense, is the appropriation for gas lighting and electricity. Even at the present moment gas lighting has the better of the argument (appropriation) necessary to maintain us in the "Light, Light Light" that the dying philosopher craved.

At the present time the City of Paris is experimenting with two processes of lighting, one the compressed gas method and the other the electric. In the Avenue de l'Opera lamps with staples (invented by the French Engineer, Bardon) throw out floods of light. The carbons are replaced by electrodes of steel or made of crystalized substances. On the Place de la Republique and the Boulevard Raspail there are powerful lamps furnished with mantles, fed with illuminating gas under pressure.

Recent statistics, gathered by M. Lauriol, Chief Engineer of the lighting service of Paris, show that the lighting powers of the apparatus used for public purposes, amount to about 7,000,000 candles per 24 hours. The quantity of gas employed in the long day of 24 hours for public lighting exceeds 91,600 cubic meters—or 3,234,000 cubic feet. For private service, the consumption for lighting, heating and power amounts to 1,140,000 cubic meters, or 4,025,000 cubic feet. The measure of electricity used in 24 hours is 13,000 kilowatts for public lighting and 154,000 kilowatts for private purposes. The hours of most intense lighting, as the average light user seems to refuse to comprehend, vary according to the season, the maximum volume of gas and electricity being consumed at 6 o'clock P.M. in the winter, and the maximum—which is, of course, much less in amount—at 8 o'clock P.M. in the summer. As to the dangers of fire from incandescent lamps, the fire in the theater at Stettin carries with it some valuable lessons. It was traced to portable electric incandescent lamps. M. Boje, Fire Marshall, supplied each type of lamp protector with a lamp of 16-candle power, having carbon filaments, and furnished from a current of 220 volts. In turn they were wrapped with stuffs in cloth, wool, silk, linen, and other air-insulating stuffs. A glass tube, plunged in the moss, rendered it possible to follow the variations of

temperature in the neighborhood of the lamp. In the case of two lamps the cloth stuff caught fire after 25 minutes contact with the glass. The light woolen, silk, and cotton stuff took fire when in contact with the bulbs at the end of 5 to 15 minutes. The heating was such that the glass itself became soft and broke. The two other lamps wrapped up in towels caused burns at the end of 30 minutes and 2 hours and 40 minutes. One lamp was tried by inclosing it in a wooden box with shavings. These took fire at the end of 3 hours; which experiment demonstrates clearly that all portable electric lamps in practical use may become a menace.

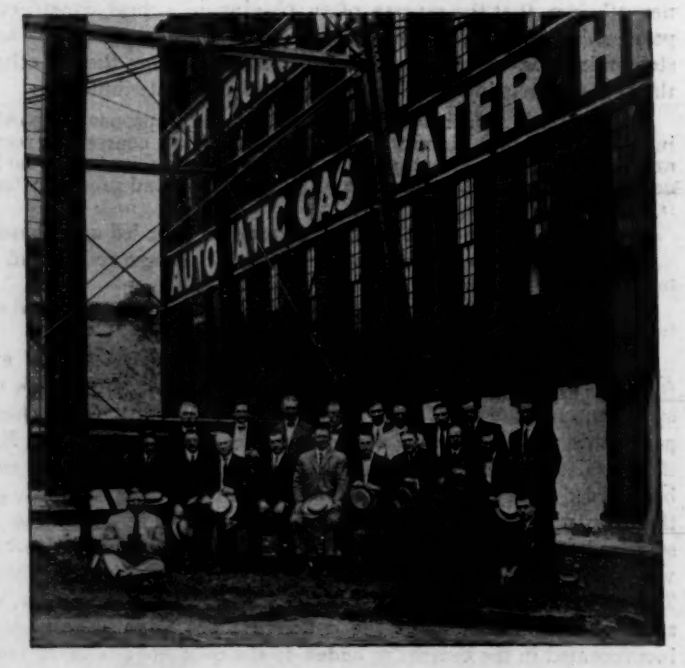
Honoring President Frampton.

On Thursday evening, August 28th, in the handsomely appointed banquet room of the magnificent Pittsburgh Athletic Association, covers were laid for 28 people, 27 of whom had gathered to voluntarily honor Mr. Reynolds Craig Frampton, President and General Manager of the Pittsburgh Water Heater Company, in a most substantial manner.

Among those present were Lee B. Mettler; Western Sales Manager; Fred. K. Wells, New England Sales Manager; W. A. Buerkle, Eastern New York Sales Manager; E. C. Lovett, Central New York Sales Manager; B. W. Dole, New Jersey Sales Manager; R. A. Pinkham, Special Sales Representative; W. Fraser Stewart, St. Louis Sales Manager; F. G. Kune, Manager, Pittsburgh Water Heater Company, of Texas; J. Hengstenberg, Cincinnati Branch Manager; W. J. Bitter, Toledo Branch Manager; Tom. R. Boss, Manager, Pennsylvania and Ohio territory; A. W. Nash, Manager, West Virginia territory, and the various department heads of the home office. Tom. J. Smith, Jr., the toastmaster, called on President Frampton to respond to "The Organization-as-a-Whole." He responded with a most interesting speech.

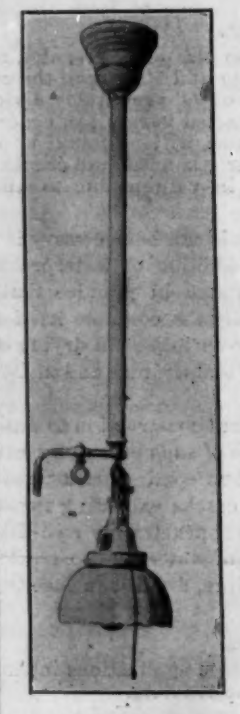
Mr. Lee B. Mettler was called on and made an excellent presentation address. In his conclusion thereto he remarked: "Mr. Frampton, as the one man who has done more to develop this industry than any other man in it; as the man who has in his endeavor to build rightly, carried innumerable burdens of great magnitude; as a man who has had to contend with competition of a most reprehensible character, with its death notices, its fake test sheets and the many other flagrant abuses of common business courtesy, we wish to plainly speak our admiration of the clean, manly fight that you have made. Your recent victory in the patent litigation, while perhaps not appreciated by the gas fraternity at large, is fully appreciated by those of us who are endeavoring to perfect the business in which we are all engaged. To you, Mr. Frampton, unwilling to stoop to questionable methods or to fight such methods with any other than clean, upright competition, all honor is due: and to show some slight, but material evidence of our appreciation of you on this auspicious occasion, I have the pleasure of presenting, on behalf of our branch managers, this little gift, trusting that as the years tick by this little token will recall this occasion to you in kindest remembrance. We hope that this will pass to your children and their children, that they may ever hold honorable and square dealings, in business and out of business, in as high esteem as have you."

At the conclusion of Mr. Mettler's remarks he handed to Mr. Frampton a beautiful case of rare wood with the President's initials engraved on a silver shield. Upon opening the case Mr. Frampton found that it contained a magnificent, solid gold watch of foreign manufacture; a very costly piece of jewelry indeed. It was some little time before Mr. Frampton could respond with his acknowledgment and appreciation of this wholly unexpected honor; but, finally recovering his presence and his voice, he thanked the donators most effectively. With this the toastmaster called on the various guests for speeches. The evening was a most pleasant one, and it was long after midnight ere the guests departed from the banquet hall.



On the day following the presentation the President and some other members of the "Prompt Service, Hot Water" organization, were photographed while on a visit to the Pittsburgh Water Heater Company's enlarged and complete plant at Idlewood, Pa. Its magnitude may be comprehended when it is noted that it covers 5½ acres of ground, and has 110,000 square feet of floor space. The picture may thus be "defined:" Standing, back row (from left to right) are: Mr. Fred. K. Wells, Manager, New England territory, Boston, Mass.; Mr. E. C. Lovett, Manager, Central New York territory, Rochester, N. Y.; Mr. W. A. Buerkle, Manager, Eastern New York territory, Brooklyn, N. Y.; Mr. Chas. Backstrom, Chief of Engineering Department; Mr. Wm. Katzenmeyer, Chief of Manufacturing Department; Mr. F. G. Kune, Manager, Pittsburgh Water Heater Company, of Texas, Dallas, Tex.; Mr. G. J. Snyder, Traffic Department; Mr. W. B. Smith, Manufacturing Department; Mr. E. J. Means, Traffic Department. Seated (second row, left to right), are: Mr. W. H. Morgan, Stores' Department; Mr. W. Fraser Stewart, Manager, St. Louis territory; Mr. B. W. Dole, Manager, New Jersey territory, Newark, N. J.; Mr. E. A. Krah, Manager, Allegheny branch, Pittsburgh, Pa.; Mr. R. C. Frampton, President and General Manager; Mr. R. A. Pinkham, Special Representative, Eastern Slope; Mr. F. C. Peters, Manager, Traffic Department; Mr. W. O. Bitzer, Efficiency Bureau. Seated (in front on ground), left, Mr. Lee B. Mettler, Western Sales Manager, Chicago; right, Mr. Tom J. Smith, Jr., Sales and Publicity Departments.

New Methods and Appliances.



KITCHEN PENDANT.—This kitchen fixture has been designed by the Consumers' Gas Company, of Toronto, Canada, and featured in that Company's September issue of *Gas News*. It is a white enamelled pendant with sliding canopy, more rigid than the common pendant, and has an independent connection above the lamp for attaching gas iron tubing. It is an excellent addition for a light campaign.

THE GAWTRY IMPROVED GAS METER.—The U. S. Patent Office has granted to Mr. Lewis B. Gawtry a patent for improvements on dry gas meters. It covers modifications in the making of leather diaphragms for dipping meters, and the general claim is thus described: "A dry gas meter, having a bellows comprising diaphragms, an annular band of leather secured at its edges to said diaphragms, with its flesh side outermost, means for uniting the ends of said band, and strips of spongy flexible material contact with and encircling said band and respectively in proximity to the opposite edges thereof."

QUICKLIME FOR THAWING FROZEN GROUND.—Mr. C. P. Chase, at the 1913 meeting, Iowa Engineering Society, thus narrated how some difficult work in sewer construction, West Liberty, Ia., was accomplished, particularly in respect of the usefulness of lime to free the soil from frost: The work was carried on through the whole winter, when the ground was frozen to the depth of 4 feet, in which state it resisted all efforts of a trenching machine to break through it. The lime, spread over the frozen ground, covering the width of the trench to be opened, was

broken up into small pieces and covered thickly with straw, hay or manure. Water was then poured on the straw so as to thoroughly slack the lime; hot water was found best and hastened the slacking. The covering retained the heat, which, with the hot water, penetrated the frozen ground sufficiently to enable the trenching machine to make headway. On another job a covering of old boards with a steam jet was used to hurry up the process. The same process has been successfully employed in Clinton, Ia., where the contractor continued work without interruption throughout the winter.

A Test for Coking Coals.—Max A. Pichel, writing in "The Colliery Engineer," says that, in the spring of 1908, while studying the physical properties of coal, especially with reference to the color of the streak and the powder, the writer observed that some coals, while being pulverized, adhered much more strongly to the pestle and mortar than others; and that the best coking coals were the ones which adhered most, whereas the non-coking coals adhered very slightly, or not at all. This phenomenon gave promise of affording a simple, and rapid method of distinguishing coking from non-coking coals, without the necessity of using an improved rick, or the better, but more expensive, way of sending the coal to a coking plant for an oven test.

Accordingly, he experimented systematically with all the coals in the study collection of the United States Geological Survey, embracing 150 samples, ranging from lignite to anthracite, and including some of the best known coking coals of the country.

Since then, others applied the test to many different coals, and the results obtained substantiate the first conclusions, that, by this simple process, coking and non-coking coals can be differentiated. Mr. M. R. Campbell, geologist in charge of the Section of Western Mineral Fuels of the United States Geological Survey, who applied this test to perhaps more coals than any other person, has not reported a single failure.

The method of conducting the test is as follows: Pulverize in a mortar a small quantity of the coal to be tested, until it will pass through a 100-mesh sieve. Pour out the loose material and note the amount that adheres to the mortar. With some coals the mortar and the pestle will be deeply coated with coal dust, which adheres so strongly that it is removed with difficulty; with other coals, there will be only a thin film of coal dust adhering, while with still others, both mortar and pestle will be nearly as clean after the operation as they were before.

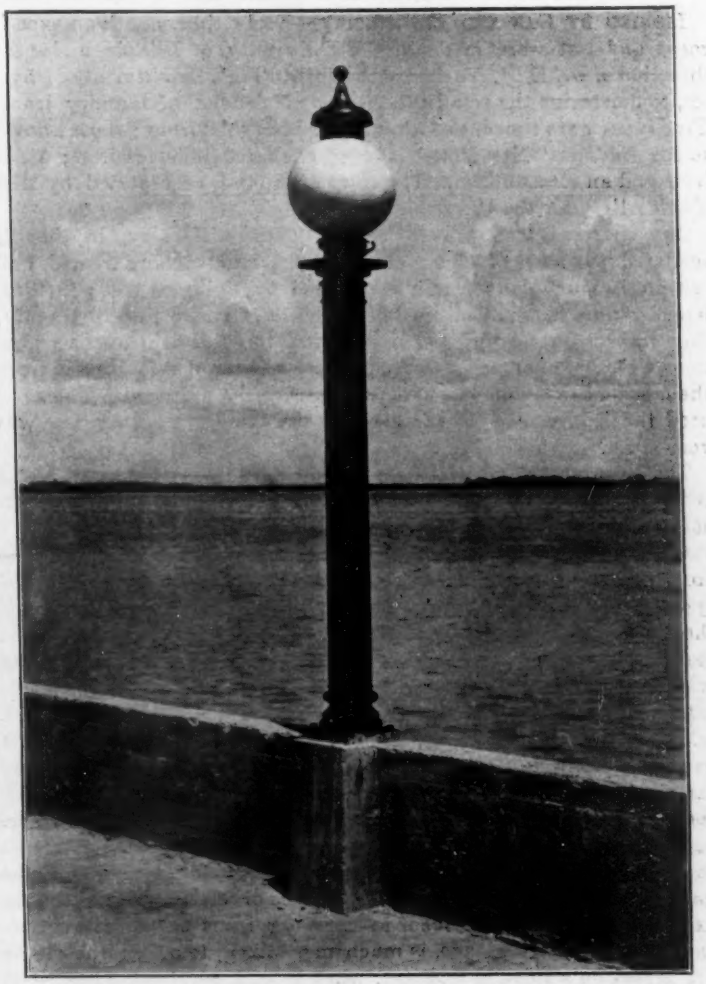
The degree of adhesion depends on the grade of the coal with reference to its coking qualities. If it adheres strongly the coal will make a good coke; if it adheres only partially the coal will make an inferior grade of coke, and if it does not adhere the coal can be regarded as non-coking.

Aside from the adhesion of this gummy soot to the mortar and pestle, some coals exhibit a tendency to pack together or cohere. Although it seems more noticeable in coking coals, this tendency to pack was observed to a lesser extent, in some of the non-coking type, and it is thought that this behavior depends on the moisture content of the coal, and that it has nothing to do with the coking qualities.

Moisture, when present in large quantities, interferes with the test, causing the coal to pack, and preventing its adherence to the mortar; hence the sample should be obtained in the dry part of the mine.

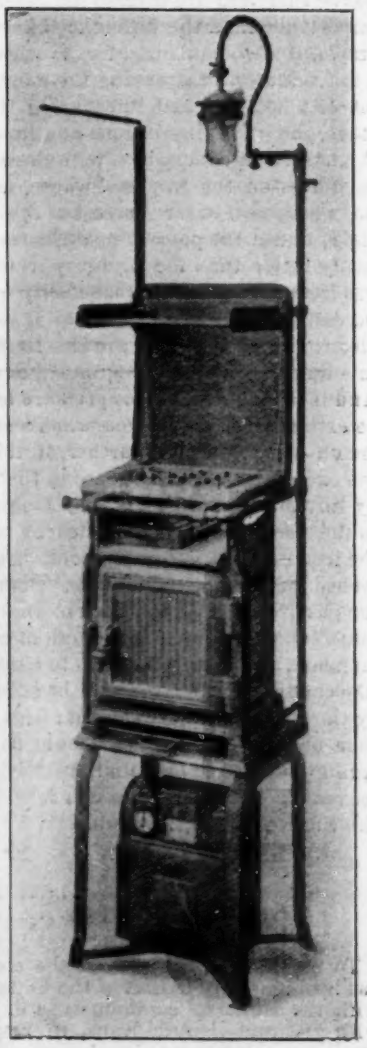
The sample should be as carefully prepared as one taken for chemical analysis, and should be taken in the same manner; *i. e.*, by cutting a channel from top to bottom of the part of the bed to be sampled. Each bench of the coal should be taken separately, as coal beds are found composed of benches, some of which will coke and others that will not. In case well developed benches do not occur, the bed might be sampled 1 foot at a time, keeping each sample separate from the others, and properly labeled. Each sample should be pulverized so as to pass through ¼-inch mesh and then quartered down to a convenient size for handling and transporting. When the author first published a description ot the test, he expressed the hope that every geologist and mining engineer would apply it with a view of proving or disproving its value as a practical test for coking coals. Since then a number of geologists have applied it in the field and the laboratory, on all kinds of coal, some of which are coked in actual practice, and not a single well authenticated failure has been reported.

The Tampa Bay Standard Gas Arc Lamp Post.—Those who have been in busy, go-ahead Tampa, with its scores of cigar-making factories, and its 50-per cent. Spanish population, need not be told that one of Tampa's crowning glories is beautiful Tampa Bay. The residents, too, are fully aware of its beauty, and of its value from a hygienic standpoint as well, and the Bay road with promenade furnishes a most attractive walk. Lately the Tampa Gas Company (and the busy place possesses no other concern that has done more for Tampa's growth than the named corporation) determined to properly



illuminate the walk. With this end in view, the authorities and Manager Nettles set about planning a lamp standard for such illuminating advance. When the Nettles' design was completed to his satisfaction, the aid of the Tampa Foundry Co. was invoked, and the outcome of their joint-endeavoring is shown in the illustration. The design shows a plain post, that impresses lhe onlooker by its massiveness and solidity. The post proper is 6 feet in height from base to crossarm, and, standing as it does on top of the two-foot sea wall, surmounted by a 16-inch opalescent globe, carrying within it a 60-candle incandescent gas mantle, the whole lighting scheme tends to greatly enhance the beauty of the promenade-drive, and its serviceability as well.

A Compact Appliance.—This "Bachelor Combination" is an English combination, designed for bachelor apartments or for small flats, where saving of space is a requisite. It economizes piping and labor of installation, and includes the prepayment meter, oven and hotplate, warming shelf, towel rail and incandescent burner, requiring but one inlet connection, to put them all in service.



IRONING BY GAS AND ELECTRICITY.—Early this month an experiment and test were made in the University of Illinois, under the direction of Dr. E. H. Warner, of the Institution's Department of Physics, to determine the relative costs and efficiencies of laundry irons. Five types were tested, as follows: Ordinary flat irons; those known to the trade as "Mrs. Potts' irons;" a charcoal heated iron; a gas iron and an electric iron. The story of the test, as reported by Miss Edith Allen, for the University, is this:

The charcoal iron proved decidedly unsatisfactory, in that it scattered particles of charcoal on the garments being treated, and seemingly much danger was occasioned by flying sparks; further, lengthy time was taken up in causing the right sort of fire; again, time was lost in heating the iron. That these difficulties or objections were not chargeable to the fuel *per se*, would seem proved from the fact that the charcoal used was especially prepared. On being used the iron cooled so rapidly that the average working time was very short.

The average cost of heating an electric iron was found to be 5.9 cents per hour (current cost, 12 cents per kw. hour); the gas iron cost of operation (gas at $1 per 1,000) was ⅛th cent per hour; the 2 Potts' irons (heated on a gas stove), cost 1.1 cents per hour; and the cost of heating the common irons was even with that of the Potts' type. The labor exerted was greatest in the Potts' instance, and in the case of the common type as they had to be lifted to and from the stove. Next came the gas iron, which had to be placed on a stand while the garments were being folded or moved. The electric iron was lowest on labor account, since the same could be stood on end while not in use. However, this latter diadvantage, as between the gas and electric apparatus, would seem easily overcome by altering the detail of manufacture. In the tests the work accomplished during the time of conducting the tests was almost alike in each instance, everything having been made as convenient as possible for the tasks in hand. Especially, no time was lost in walking to and from the gas stove, or in turning on or off the gas or electric currents. An expenditure of time and labor in carrying irons across a room, because of the inconvenience, is much more likely to occur when irons are heated on a stove of any sort, whether gas, gasoline, oil or wood be the fuel used to generate the heat. Indeed, this is often of greater importance than the difference in cost of heating the irons. For example, if a woman hired for 20 cents an hour loses ½ minute every 4 to 5 minutes, in changing the handle to the Potts' iron, from a cold one to a hot one, and in carrying them over to and back from the stove, the travelling is done at a loss of time amounting to 2 cents in the hour. In comparison with the cost of operating the electric iron such loss on the workers' wages, under average conditions, would (in a measure) cover the cost of operating the electric iron. So possibly, under the poorest conditions of operating, the electric iron is easily better than the ordinary iron or one of the Potts' type. The gas iron may not be satisfactorily used with natural gas. There is no danger from soot, smoke or grease in operating with the gas or electric iron; and these are also found to be perfectly safe. The heat in a gas iron is easily regulated, and to a nicety, by turning a tap. And if perchance the gas pressure becomes excessive, the flame will be extinguised, as happens when a similar thing occurs in the burners on a gas range. Further, in this regard, electric irons require the exercise of common sense in their employing, since they are not by any manner of means, proof against burning out; and the heat to the electric iron is regulated by turning the current off and on as the iron *gets too hot* or too cold. Possibly a 3-heat arrangement attached might be an advantage. Some operators object to the tube of the gas iron and to the cord of the electric one; but as the two are quite equal in weight per length of cord, and being of almost similar diameter, any annoyance due to either is the same when used under like conditions; but this can be reduced to a minimum in each case by the following arrangement: The inlet or chandelier to which the tube or cord is attached, should be above the ironing board and a spring attached to take up the slack in the tube or wire as the iron is moved backward or forward, thus keeping the tube or cord out of the worker's way. The table gives the costs at a glance:

Type of Iron,	Quantities of Element Used.	Cost per Hour.
Electric	494 k. w.	$0.059
Gas	4 cu. ft.	0.004
Potts'	11.20 "	0.011

To summarize, the cost of the electric iron is 15 times that of the gas iron and 5 times that of the Potts' iron. Also, the cost of ironing with the Potts' or common type of irons is increased in comparison with gas and electric irons, in respect of the time and energy expended in using them.

Items of Interest
FROM VARIOUS LOCALITIES.

MR. J. E. COWLES, of Kenosha, Wis., heretofore District Manager, the Wisconsin Gas and Electric Company, has been appointed Superintendent of Electrical Distribution in the Racine (Wis.) district, Milwaukee Electric Railway and Light Company, assuming duties connected with the position last Monday. Mr. H. E. Weiss, who resigned from the service last July, goes to the General Electric Company, with headquarters in Chicago. Mr. Cowles' successor at Kenosha is Mr. G. H. Cook, formerly on the engineering staff of Vaughan & Myers, of Milwaukee.

"JUST a line to let you know that 'Al.' Cullet, of the Laconia (N. H.) Gas and Electric Company, was married last week. And I think it safe to say that the bride (Miss Corina Dube) made no mistake in her determination to be known hereafter as Mrs. Cullett. We wish them nothing other than success.—L. T. M."

ON Thursday, the 2d prox., the Public Service Commission of New Hampshire will take testimony in respect of the petition for a lowering of the gas rates in Manchester, N. H. Why this agitation should be underway is difficult to reasonably explain. The net rate in Manchester, on all account and use, is $1.10 per 1,000, which figure, to a disinterested party, looks extremely low, all things considered. No other Eastern Company is better managed or has been more liberal in its dealings with the public than has the Manchester corporation mentioned. And the liberality of its course has often been publicly noted by the newspapers of that city. In fact, if fair treatment were accorded the corporation, the petition should have for its proper purpose an attempt to raise the schedule rather than lower it.

THE Madera (Cal.) Gas Company's proprietors have applied to the authorities for permission to purchase the gas plant heretofore operated in that place by George W. Kitchen. Also, to have the right to issue $25,000 in bonds and $25,000 in stock, such securities to represent the cost of taking over the property.

ADVICES by way of Visalia, Cal., are to the effect that, since the organization of the Central California Gas Company last spring, by Mr. C. S. S. Forney and associates, of Monrovia, Los Angeles and San Francisco, betterments, at an approximate cost of $130,000, have been made. The Company (the first to be organized under the jurisdiction of the State Railroad Commission) now operates the best equipped gas plant in the wondrously beautiful Valley of San Joaquin. Mains have been extended to every direction in the county, and the Company is now supplying gas satisfactorly to the residents of Visalia, Porterville, Tulare, Strathmore, Lindsay and Exter. The Central California Gas Company had its origin in the purchase, by Mr. Forney and associates, of the gas properties in Porterville and Tulare, neither of which had been developed. They then purchased the Visalia plant and forthwith began an extensive campaign of development covering every section of the county. A recent rate reduction of 25 cents per 1,000 cubic feet is effective, and it is in cards that another like concession will be granted before the winter merges into spring. The Pacific Light and Power Corporation has begun the erection of a string of high-power steel towers through the county, and a construction camp has been pitched at a point possibly two miles east of Visalia—this is bound to be an important center in the near future—where a large force of men, handling scores of teams, are busily at work; and that "busily" is used advisedly seems borne out when it is noted that the men are covering ¼ mile per day. Early in the month the towers erected reached the famous Woodlake road, and the wire crew are close behind the tower workers. Still another gang of tower men are working in the northern part of the country between the Sandsay-Tulare road, and by next summer Joaquin Valley will be well girdled and pierced by transmission lines. I will post you in respect of the progress made; perhaps, later on, I will detail some of the difficulties encountered; also, as to how these were surmounted.

TESTS made by the City Chemist (Mr. F. E. Pegg) of Spokane, Wash., show that, during the month of August, the average heating value of the gas supplied by the Spokane Gas Company was 602 B.T.U., the legal stipulation calling for 600.

AT last the Cooperstown (N. Y.) Gas Company has determined to surrender its charter, and the supply of gas to the residents was dis-

continued the 5th inst. The company was to have closed down the 1st of July, but continued to the date noted by order of the Public Service Commission for the Second District. That body having assented to the Company's withdrawal, the work of demolition is now in progress.

A SPECIAL meeting of the shareholders in the Municipal Gas Company, Albany, N. Y., has been called for the 29th inst., for the purpose of determining whether or not the Board of Directors shall be composed of 9 (instead of 7) members.

ONE of the features of the great San Francisco annual show (otherwise the Mechanics' Fair) will be a complete display of modern mechanical devices for use in the household, amply illustrated by a competent demonstratress. Another section of this display will comprise an exhibition of the industrial uses (on a large scale) of gaseous fuel. Metal melting, forging and brazing practices will be illustrated and explained by competent mechanics, and a third section will be devoted to the use af hotel and restaurant gas ranges, with an especial showing of siphon burners, etc.

"L. V. W.," writing from Fresno, Cal., under date of the 6th inst., says: "One G. B. DeGray, professional aeronaut, who has been quite busy here securing signatures to a petition for lower gas rates, is being hunted as a forger. He secured the signature of several business men to the petition, then traced their signatures on several small checks. He secured passibly $100 by this means, and, growing bolder, tried to forge for larger sums. This attracted the attention of the banks, but before they could nab him he made good his escape. He answers this description: Age, 40; height, 5 feet 7 inches; weight, 200; hair, chestnut, shading to red; smooth shaven. My idea in sending this is that possibly he may try the same game elsewhere."

FOLLOWING the decision by the courts favoring the Newport News (Va.) Gas Company in its determination to discontinue the manufacture of gas in its Hampton (Va.) works, the supply of gas in the latter-named place to be furnished from the Newport News headquarters, the Company is practically overhauling its water gas equipment. The contract for this rehabilitation has been awarded to the Western Gas Construction Company, of Fort Wayne, Ind., and the same contractor will furnish apparatus for concentrating the ammoniacal liquor produced in the coal division of the Newport News works. Additional coal gas benches have recently been put in operation, and, following the alterations to its water gas section, the Newport News operators anticipate being able to take care of the entire gas needs of Newport News, Hampton, Phoebus, Old Point Comfort and Buckrose Beach.

THE Directors of the American Public Utilities Company have declared the regular quarterly dividend of 1½ per cent. on the preferred shares and a dividend of one-half per cent. on the common, both payable to shareholders of record, September 15th.

THE earnings of the American Public Utilities Company are very satisfactory to the operators. The gross earnings of the subsidaries for July last were $148,670, as against $130,078 in July 1912, a percentage increase of 14.29. Operating costs were such as to show net earnings for this July of $60,454, as against $53,173 in 1912, or a percentage gain of 13.69. For the 10-month period ended July 31st the gross was $1,869,521, comparing with $1,640,739 in 1912, a percentage increase of 13.94. The net for the like periods shows a percentage gain of 17.21. Deducting the fixed charges and dividend requirements on the preferred, the surplus shows a balance of $207,441. Up to June 30th, noting the fixed charges for the year, with dividend requirements for the like period on outstanding preferred, the Company's earnings were equivalent to 7.83 per cent. on the $2,920,000 common outstanding. Secretary Gavett declares that the Company's business, in the various communities it serves, is increasing with a steadiness and surety that are most gratifying to its shareholders and its management.

IN order to bring its modern plant right up-to-date in every respect, the proprietors of the Montgomery (Ala.) Gas Company have authorized The Gas Machinery Company, of Cleveland, to install an ammonia-concentrator plant.

MR. FLOYD E. WRIGHT, of Fortville, Ind., has been appointed State supervisor of gas, for Indiana, succeeding Mr. W. E. Morse, resigned.

MR. GEORGE W. BARNES, Pittsburgh, Pa., who was recently appointed General Manager, the Southern California and Midway Gas Companies, is now in active charge. His headquarters are in Los Angeles.

THE Commissioners of the District of Columbia have instituted proceedings to require the Washington Gas Light Company to dispose of its stockholdings in the Georgetown (D. C.) Gas Light Company.

THE Massachusetts Board of Gas and Electric Light Csmmissioners has authorized the Arlington Gas Light Company to issue 800 shares additional stock, the upset price thereof to be $100 per share.

THE City Council, of Holland, Mich., in special session, has called a special election, to be held the 6th prox., to finally dispose of the matter of gas rates, the agitation over which was commenced in 1910. The Holland Gas Company will submit two propositions in the referendum vote. These are, an amended franchise or the bonding of the city, in the sum of not more than $300,000, for taking over the property of the Company for operation on municipal account, the amount to be paid on the purchase account to be determined by the appraisal of experts. If the voters reject this scheme, the current legislation will drag along its wearying way. The Company has agreed to foot the bill for the election, and if the amended franchise carries by a ⅔ vote it will extend its service by laying 3 miles additional of mains, within 8 months. According to the amended franchise, the price of gas will be $1 per 1,000 cubic feet, less 10 per cent. on accounts settled within 15 days, disregarding the limit output of 50 millions cubic feet. This output, when reached under the existing franchise, would act automatically to reduce the selling rate to 90 cents per 1,000 cubic feet.

"B. T. M.," writing from Salt Lake City, Utah, under date of the 10th inst, says: "The laying of gas mains in connection with the gas supply of Provost, Utah, is now underway, and the promise is made by the proprietors of the Utah Valley Gas and Power Company that the supply will be commenced on or before November first.

MESSRS. R. D. WOOD & COMPANY, have been awarded the contract for the new storage holder (up to retaining 500,000 cubic feet) that is to be added to the plant of the Norwich (Conn.) municipal gas works. The contract specifies that the vessel is to be completed by January 1, 1914.

THERE was no opposition at the meeting of the Massachusetts Board of Gas and Electric Light Commissioners, held to consider the application of General Manager W. T. Soper, of the Taunton Gas Light Company, for the right to extend its distributing system to and through the limits of the town of Raynham.

MR. J. W. MURDOCH has resigned as Manager of the Bethlehem (Pa.) Consolidated Gas Company, to take up the work connected with the position of General Manager of the properties of the Associated Gas and Electric Company, with headquarters in Ithaca, N. Y.

UNDER its new franchise agreement the minimum monthly rate that may be charged by the Manistee (Mich.) Power and Light Company is fixed at 50 cents. The prior figure was $1.

THE Greensboro (N. C.) Public Service Company has contracted for the installation of a coal gas plant, complete, to have an ultimate producing capacity of 300,000 cubic feet per day. The plant, which will be complete in every detail, is to be constructed and installed by the Western Gas Construction Company, of Fort Wayne, Ind. The same contractor, by-the-way, has just completed a storage holder at Greensboro, having a capacity of 200,000 cubic feet. When this work will have been completed, Manager Andrews will be in charge of an establishment, modern and complete.

Recent Patent Issues.

Prepared for the AMERICAN GAS LIGHT JOURNAL by ROYAL E. BURNHAM, solicitor of patents and counselor in patent causes, 833 Bond Building, Washington, D. C., from whom illustrations and specifications of any patent mentioned below may be obtained for 20 cents.

1,072,113. Portable Gas Range. E. L. Hall and R. F. George, San Francisco, Cal.

1,072,115. Gas Stove. W. H. Harmon, Chicago, Ills.

1,072,349. Lighting Device for Gas Burners of Ovens. A. C. Mott, Jr., Philadelphia, Pa., assignor to Abram Cox Stove Co., same place.

1,072,370. Water Gas Apparatus. J. C. Stelfox, Westminster, London, England, assignor to A. G. Glasgow, Richmond. Va.

The Market FOR GAS SECURITIES.

Stock market movements early in the week were upward, but later developments have wiped out most of the gains.

Consolidated gas at 133 to 133¼ is the same as a week ago, and Brooklyn Union at 128 to 129, is a little lower.

U. G. I. has held its gains and seems not unlikely to cross 90 again shortly.

Massachusetts common and preferred are 1 and 2 up, respectively. This Company's yearly statement shows net earnings of $1,596,845 from its four gas subsidiaries; and by its five other activities $1,008,000 or a total net of $2,604,845, equivalent to 4.93 per cent. on the common, after providing for bonds and preferred stock.

Gas Stocks.

Quotations by George W. Close, Broker and Dealer in Gas Stocks.

115 BROADWAY, NEW YORK CITY.

SEPTEMBER 22.

☞ All communications will receive particular attention.

☞ The following quotations are based on the par alue of $100 per share:

N. Y. City Companies.	*Capital.*	*Par.*	*Bid.*	*Asked*
Consolidated Gas Co.	$99,816,500	100	133	133¼
Central Union Gas Co. — 1st 5's, due 1927, J. & J.	8,500,000	1,000	101	103
Equitable Gas Light Co.— Con. 5's, due 1932, M. & S.	1,000,000	1,000	105	106
Mutual Gas Co.	8,500,000	100	157	157
New Amsterdam Gas Co.— 1st Con. 5's, due 1948, J. & J.	11,000,000	1,000	99	101
New York & Richmond Gas Co. (Staten Island)	1,500,000	100	59	62
1st Mtg. Gold Bds. 5 p. ct.	1,500,000	—	98¼	100¼
New York and East River— 1st 5's, due 1944, J. & J.	3,500,000	1,000	103	105
Con. 5's, due 1945, J. & J.	1,500,000	—	98	100
Northern Union— 1st 5's, due 1927, J. & J.	1,250,000	1,000	100	102
Standard	5,000,000	100	102	104
Preferred	6,000,000	100	93	94
1st Mtg. 5's, due 1930, M. & N.	1,500,000	1,000	93	95
The Brooklyn Union	15,000,000	1,000	128	129½
1st Con. 5's, due 1948, M. & N.	15,000,000	—	106¾	107
Yonkers	999,650	500	130	—
Out-of-Town Companies.				
Binghampton Gas Works	450,000	100	—	—
" 1st Mtg. 5's	500,000	1,000	97	100
Boston United Gas Co.— 1st Series S. F. Trust	7,000,000	1,000	82	85
2d " " "	3,000,000	1,000	47¾	50
Buffalo City Gas Co.	5,500,000	100	5	8
Bonds, 5's	5,250,000	1,000	59	60
Capital, Sacramento	500,000	50	—	35
Bonds (5's)	150,000	1,000	—	—
Chicago Gas Co. Guaranteed Gold Bonds	7,650,000	1,000	104	105¼
Columbus (O.) Gas Co., 1st Mortgage Bonds	1,500,000	1,000	96	98
Columbus Gas Light & Fuel Company	1,882,750	100	65¾	66¼
Preferred	3,036,500	100	33	35¾
Consumers, Toronto	2,000,000	50	200	204
Consolidated, Baltimore	13,460,084		118¾	119
Mortgages, 5's	3,400,000	—		—
General Mortgage 4½	10,661,000	—		—
Con. Gas Co., Baltimore City, 4½	2,751,000	—		—
Consolidated Gas Co. of N. J.	1,000,000	100	15	—
Con. Mtg. 5's	976,000	1,000	94	96
Bonds	75,000	—	—	100
Detroit City Gas Co.	6,550,000	—	—	80
Detroit Gas Co., 5's	881,000	1,000	75	80
" Prior Lien 5's	5,619,000	1,000	97	100¼
Equitable Gas & Fuel Co., Chicago, Bonds	2,000,000	1,000	—	101
Essex and Hudson Gas Co.	6,500,000	—	133	136
Fort Wayne	2,000,000	—	—	—
" Bonds	2,000,000	—	55	—
Grand Rapids Gas Light Co., 1st Mtg. 5's	1,850,000	1,000	100	101
Hartford	750,000	25	190	200
Hudson County Gas Co., of New Jersey	10,500,000	—	130	138
" Bonds, 5's	10,500,000	—	104	106
Indianapolis	2,000,000	—	85	90
" Bonds, 5's	2,650,000	—	90	93
Jackson Gas Co.	250,000	50	82	—
" 1st Mtg. 5's	290,000	1,000	97	100
Cincinnati Gas and Electric Co.	20,500,000	100	69	70
Kansas City Gas Light Co., of Missouri	5,000,000	100	—	88
Bonds, 1st 5's	8,322,000	1,000	98½	99
Laclede Gas Co., St. Louis.	10,000,000	100	100	101
Preferred	2,500,006	100	—	102¾
Bonds	10,000,000	1,000	102¾	103
Lafayette Gas Co., Ind.	1,000,000	100	—	60
Bonds	1,000,000	1,000	60	65
Louisville	2,570,000	50	130	130
Madison Gas and Electric Co. " 1st Mtg. 6's	400,000	1,000	106	
Massachusetts Gas Companies, of Boston	25,000,000	100	91½	92¼
Preferred	25,000,000	100	91	92
Montreal L. H.& P., Canada	3,000,000	100	218	219
Nashville Gas Light Co.	1,000,000	100	110	—
Newark, N. J., Con. Gas Co.	6,000,000	—	97	98
Bonds, 6's	6,000,000	—	127	128
New Haven Gas Co.	5,000,000	25	189	190
Peoples Gas Lt. & Coke Co., Chicago	25,000,000	100	123¼	123½
1st Mortgage	20,100,000	1,000	102	102½
2d "	2,500,000	1,000	104	—
Rochester Gas & Electric Co.	2,150,000	50	88	—
Preferred	2,150,000	50	118	—
Consolidated 5's	2,000,000	—	104¾	105¼
Pacific Gas and Electric Co.	15,500,000	—	39	40
St. Joseph Gas Co.— 1st Mtg. 5's	1,000,000	1,000	96	98
St. Paul Gas Light Co.	2,500,000	100	—	—
1st Mortgages, 6's	650,000	1,000	104	105
Extension, 6's	600,000	1,000	113¾	115
General Mortgage, 5's	3,447,000	1,000	94	96
Syracuse Gas Co., N. Y.	1,975,000	100	50	55
Bonds	2,047,000	1,000	101	103
United Gas Imp. Co.	55,502,960	50	87	87¼
Washington (D. C.) Gas Co.	1,600,000	200	422½	427½
1st Mortgage, 6's	600,000	—	—	—
Western Gas Co., Milwaukee	4,000,000	—	—	—
Wilmington (Del.) Gas Co.	600,000	50	—	—

MEETING TIMES OF THE VARIOUS GAS ASSOCIATIONS.

American Gas Institute.—Annual meeting, Richmond, Va., October 15-17, 1913. Officers: President, W. R. Addicks, New York City. Secretary, Geo. G. Ramsdell, 29 West 39th st., N. Y. City.

Canadian Gas Association.—Annual meeting————1914. Officers: President, A. A. Dion, Ottawa; Secretary and Treasurer, John Keillor, Hamilton, Ont.

Empire State Gas and Electric Association.—Annual meeting, New York City, Oct. 8, 1913. Officers: President, C. G. M. Thomas, Long Island City, N. Y.; Secretary, C. H. B. Chapin, 29 W. 39th street, New York City.

Gas Meters.—Monthly Section Meetings; Grand Commissioner, Will. W. Barres, East Orange, N. J.; Gen'l Sec'y, H. Thurston Owens, La Crosse, Wis.; New York Section, Chairman, W. H. Pettes; Secretary, G. E. Smith, Sipp Avenue, Jersey City, N. J. Philadelphia Section; Chairman, Stanley Grady; Secretary, H. E. Stiteler, Broad and Arch streets. Cleveland Section, Chairman, F. R. Hutchinson; Secretary, Wm. Holtz, East Ohio Gas Co. New England Section, Chairman, T. W. Jennings, Boston; Sec., F. K. Wells, 69 Broad street, Boston. Winona Section, Winona, Minn., W. F. Clausen, Chairman. Bethlehem Section, Trueman Weithnecht, Chairman; Sec.-Treas., Truman Buss, South Bethlehem, Pa.

Guild of Gas Managers of New England.—Annual meeting, March, 1914. Young's Hotel, Boston; monthly meeting, second Saturday. Officers: President, Walter G. Africa, Manchester, N. H.; Secretary, H. K. Morrison, Brockton, Mass.

Illinois Gas Association.—Annual meeting, March 18th and 19th, 1914. Chicago, Ills. Officers: President, W. F. Barrett, Chicago, Ills.; Secretary-Treasurer, Horace H. Clark, 115 No. Oak Park avenue, Oak Park, Ills.

Illuminating Engineering Society.—Annual meeting,———— September, 1913. Meetings of Sections, monthly. Pres., Preston S. Millar; General Secretary, J. D. Israel, 29 W. 39th street, New York City. Sections: New York, Secretary, C. L. Law, 124 West 43d street. New England, Secretary, H. C. Jones, 10 High street, Boston, Mass. Philadelphia, Secretary, L. B. Eichengreen, Broad and Arch streets. Chicago, Secretary, J. B. Jackson, 28 North Market street. Pittsburgh, Secretary, J. C. Mundo, Oliver Building.

Indiana Gas Association.—Annual meeting, March —— —— 1914. Terre Haute. Officers: President, A. S. Cooke, Terre Haute; Vice-President, A. C. Blunn, Evansville; Secretary-Treasurer, Philmer Eves, Indianapolis.

Iowa District Gas Association.—Annual meeting, Davenport, May 27, 28, 29, 1914; Officers: President, B. C. Adams, Lincoln, Neb.; Secretary, G. I. Vincent, Des Moines, Ia.

Kansas Gas, Water and Electric Light Association.—Annual meeting, October—— 1913. ———— Officers: President, L. O. Ripley, Emporia, Kas.; Secretary and Treasurer, W. H. Fellows, Leavenworth, Kas.

Michigan Gas Association.—Annual meeting, September 17, 18 and 19, 1913. Detroit. Officers: President, W. S. Blauvelt, Detroit, Mich; Secretary-Treasurer, Glenn R. Chamberlain, Grand Rapids, Mich.

Missouri Electric Light, Gas, Water Works and Street Railway Association.—Annual meeting, April, 1914; Mexico, Mo. Officers: President, P. A. Bertrand, Joplin, Mo.; Secretary and Treasurer, P. W. Markham, Brookfield, Mo.

National Commercial Gas Association.—Annual meeting and gas show, Dec. 1-6, 1913. Philadelphia, Pa. Officers: President, C. W. Hare, Philadelphia Pa.; Secretary, Louis Stotz, 29 West 39th street, New York City.

Natural Gas Association.—Annual meeting, St. Louis, Mo., May 19 and 20, 1914; Officers: President, E. L. Brundrett, Kansas City, Mo.; Secy-Treas., T. Clive Jones, Delaware, O.

New England Gas Association.—Annual meeting, February, 18th and 19th, 1914, Boston. Officers: President, T. H. Hintze, Providence, R. I.; Secretary-Treasurer, N. W. Gifford, East Boston, Mass.

New Jersey State Gas Association.—Annual Meeting, July —, 1913, Asbury Park N. J. President, C. F. Butcher, Freehold, N. J.; Sec'y-Treasurer, O. F. Potter, Newark, N. J.

Ohio Gas Association.—Annual meeting, February ——— 1914 Columbus, O.; President, John M. Garard, Columbus, O.; Secretary, L. B. Denning, Columbus, O.

Oklahoma Gas, Electric and Railway Association.—Annual meeting, Oklahoma City May, ——1914. President, F. E. Bowman, Ada; Secretary-Treasurer, H. V. Boze Oklahoma City.

Pacific Coast Gas Association.—Annual meeting, Long Beach, Cal., September ——— 1914. Officers: President, C. S Vance, Los Angeles, Cal.; Secretary-Treasurer, Henry Bostwick, 445 Sutter street, San Francisco, Cal.

Pennsylvania Gas Association.—Annual meeting, Allentown, Pa., April ———, 1914; Officers, President, J. A. Frick, Allentown, Pa.; Secretary-Treasurer, W. O. Lamson, Jr., West Chester, Pa.

Society of Gas Lighting.—Annual meeting Dec., 11, 1913; monthly meetings, second Thursday. Place, New York City. Officers: President, Fred. S. Benson; Secretary, George G. Ramsdell, 29 West 39th street, New York city.

Southern Gas Association.—Annual meeting, Mobile, Ala., April 4, 1914. Officers: President, James Ferrier, Rome, Ga.; Secretary-Treasurer, E. D. Brewer, Atlanta, Ga.

Southwestern Electrical and Gas Association.—Annual meeting, May———— 1914, Galveston, Tex. Officers: President, G. H. Gifford, Fort Worth Tex.; Secretary H. S. Cooper, 405 Slaughter Bldg., Dallas, Tex.

Wisconsin Gas Association.—Annual meeting, May ————1914, Milwaukee, Wis. Officers: President, Ewald Hasse, Milwaukee, Wis.; Secretary-Treasurer, Henry Harman, Milwaukee, Wis.